

**INJURY, ILLNESS, AND ACCIDENT ANALYSIS FOR HISTORICAL TRENDS AND
DEVELOPMENT OF STANDARD REPORTS**

NCDOT Research Project 2008-09

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<p>16. Abstract</p> <p>The objective of this research study is to provide an accurate and reliable analysis that can be used to develop safer and healthier work environments for all North Carolina Department of Transportation (NCDOT) employees. The specific objectives of this research study are twofold: (1) to closely examine the NCDOT "RISKMASTER Database; and (2) to develop a standard reporting template from that database which can then be used to generate any needed reports.</p> <p>The North Carolina Department of Transportation (NCDOT) is experiencing an increase in job-related injuries, illnesses, and accidents. These incidents and accidents lower worker morale, increase workers' compensation claims, decrease productivity, and increase costs. The risk of injury and accident is particularly acute in highway construction because road construction workers are perilously close to dense, fast-moving traffic every day. The Safety & Loss Control Division recognizes that preventing work-related incidents and accidents is a vital part of keeping the NCDOT's workforce functioning at full capacity. This Division is charged with developing and implementing an Occupational Safety and Health (OSH) System to protect both employees and the traveling public. Hazard assessments are performed using data gathered from audits of facilities and work sites; once the hazards are identified, protocols can be developed to prevent incidents and accidents before they happen.</p> <p>The purpose of this research is to analyze the Division's database of incidents and accidents with the ultimate goal of improving safety in the NCDOT's operations. The goals of this research project are to (1) identify various risk factors for the operations of the NCDOT's Divisions; (2) analyze the circumstances related to the occurrence of incidents and accidents; and (3) identify trends in the rate of incident/accident occurrence. Through examination and analysis of the NCDOT's "RISKMASTER Database," the specific tasks of the NCDOT's operations whose performance frequently results in injuries, illnesses, or fatalities are identified and the type of hazards that are most prevalent determined. This will provide valuable insight into how to mitigate the risk factors. A standard reporting format is developed so that the OSH System's management team can track incident and accident trends in the future.</p>			
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EXECUTIVE SUMMARY

The objective of this research study is to provide an accurate and reliable analysis that can be used to develop safer and healthier work environments for all North Carolina Department of Transportation (NCDOT) employees. The specific objectives of this research study are twofold: (1) to closely examine the NCDOT “RISKMASTER Database; and (2) to develop a standard reporting template from that database which can then be used to generate any needed reports.

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INTRODUCTION

The North Carolina Department of Transportation (NCDOT) builds and maintains the state's transportation system through its 14 highway divisions. Through these highway divisions, numerous transportation design, construction, operation, maintenance, rehabilitation, and reconstruction projects are conducted each year. These daily operations, however, present many safety risks not only to highway workers involved in the operations but also to travelers using the transportation system. Although the NCDOT has made great strides in reducing the accident and injury rate, developing and maintaining a safe and healthy work environment for all employees continues to be the primary consideration in all of its operations, as accidents and incidents are continuing to take their toll.

The Safety & Loss Control Division of the NCDOT recognizes that incidents and accidents significantly impact not only the morale of the workforce but also the productivity and cost of operations. Therefore, it is charged to develop and implement a safety and health program that protects both the NCDOT employees and the traveling public. Specifically, the Safety & Loss Control develops policies and procedures that serve as the foundation of the NCDOT Occupational Safety and Health (OSH) Program and ensures their implementation in accordance with the state's safety policies and procedures.

As part of the ongoing safety management effort, the Safety & Loss Control commenced this research to analyze and identify trends of accidents and incidents that typically occur in daily operations of the NCDOT. Incident and accident trends provide valuable insight in achieving ongoing improvement in overall OSH performance. Thus, trending is a useful tool in determining focus areas to further reduce and prevent injuries and accidents to the NCDOT workforce and equipment.

More specifically, this research study was sponsored to identify the most important risk factors and any unique safety concerns associated with all 14 divisions of the NCDOT and related offices. Various circumstances related to the occurrence of incidents and accidents were analyzed, and trends in the rates of their occurrence were noted. The research findings are expected to provide valuable insight into how to mitigate the risks and to further assist the NCDOT's OSH system management team to identify hazards before an incident or accident occurs, thus managing risks appropriately.

BACKGROUND

The Bureau of Labor Statistics (BLS) data indicate that in 2004, there were 401,000 nonfatal injuries and illnesses in construction with the rate of 6.4 per 100 full-time workers as compared to 4.8 per 100 full-time workers in all private industry (BLS 2006). Fatalities also pose a significant problem in the construction industry. The BLS statistics for the year 2004 show the construction industry having 1,234 fatal injuries, which made up 21 percent of all fatalities in the U.S. This demonstrates that the number of fatal work injuries occurring in the construction industry was the highest out of any industry (BLS 2006). These injuries and fatalities are not only detrimental to workers but also costly as well.

The same BLS statistics also show that in 2004, the nonfatal injuries and illnesses incidence rate in highway, street, and bridge construction accounts for 6.4 per 100 full-time workers in heavy and civil engineering construction. As for the fatal work injuries, the total numbers of construction fatalities declined by 4 percent in 2005; however, the number of fatalities in highway, street, and bridge construction constantly increased. Unless the working conditions improve or better preventive measures are improvised, these rates will continue to increase as hundreds of thousands of road construction workers are perilously close to dense, fast-moving traffic every day. As Shipp (2006) mentioned, distracted and aggressive drivers and heavy, noisy, dangerous equipment inside the work zone compound the risks faced by road workers.

It is widely understood that traffic accidents account for the largest percentage of occupational fatalities each year (National Safety Council, 2002; BLS, 2002; Centers for Disease Control and Prevention [CDC], 1993). However, fewer researchers have paid attention to preventing work-related motor-vehicle crashes as well as other accidents related to transportation projects (National Institute for Occupational Safety and Health [NIOSH], 1998). Identifying/determining the number of accidents, incidents, or fatalities is one means of comparing hazards in construction with those of other occupations. Changes in these data, over time, serve as a measure of trends in construction safety (U.S. Department of Labor, 1990). Identifying hazards and finding information on the causes of these accidents are integral to the processes of identifying and mitigating risks, and thus reducing accidents.

“Risk” has been defined as likelihood and consequence of a hazard happening. Here, “hazard” denotes anything with the potential to harm people, property, or the environment which may be discovered in materials, equipment, locations, processes, or work methods (NCDOT Occupational Safety and Health System Management 2005). For better safety management and hazard assessment, the potential risk factors causing unforeseen injuries and illnesses need to be identified, since specific tasks that are linked to these risk factors could provide further knowledge of how to mitigate the injuries and illnesses. These collection, analysis, and distribution of safety data are important components in managing risk. Through risk management, the transportation agency can control the probability and severity of losses of assets and income. Hazard identification starts with accumulating safety data, which includes information collected from safety audits, employee injuries or claims, accident reports, etc. Analyzing this safety data is an important step towards resolving potential hazards and allocating resources to safety elements that may reduce the number of incidents and accidents. The primary purpose of NCDOT hazard assessment in OSH system management is to identify hazards prior to the occurrence of an incident and to manage risks appropriately. For this, it is necessary to identify specific tasks that are frequently involved with injuries, illnesses, or fatalities in the NCDOT operations and to determine type of hazards that are most prevalent.

The Safety & Loss Control Division of the NCDOT collects and maintains all necessary information pertaining to the agency’s incident and accident records on a database program called “RISKMASTER Database.” However, lack of available resources has kept the division from conducting further research of the database to analyze hazards; thus, properly managing risks. For the purposes of this research, an “accident” is used to describe things that happen unintentionally involving equipment and vehicles, while an “incident” involves human injuries, illnesses, or fatalities.

PROBLEM STATEMENT

Injuries and accidents among workforce can result in lower worker morale, increased workers' compensation claims, and decreased profitability and productivity. Prevention of accidents and injuries begins with having a clear understanding of the factors that play key roles in their causation (Hinze et al. 1998). The primary source of detailed information on the circumstances associated with many serious injuries, illnesses, and accidents for most of NCDOT's operations is the "RISKMASTER Database." It contains data on all incidents which involve work-related human injuries, illnesses, and fatalities or accidents that are related to vehicles and equipment. Accidents and incidents are recorded separately. Detailed information (provided by the employee, employer, and the investigative unit) is also entered. Per needs or requests, this database can generate numerous reports with any customized variables or information through its "SORTMASTER" program. However, to date, few researchers and little time have been available to study the database and draw meaningful and usable conclusions from the data.

SCOPE AND OBJECTIVES

The overarching goal of this research study is to provide an accurate and reliable analysis that can be used as a framework to develop safer and healthier work environments for all NCDOT employees. The specific objectives of this research study are twofold: (1) to closely examine the NCDOT "RISKMASTER Database" [specifically jobs and tasks associated with injuries, illnesses, and fatalities (i.e., incidents) and accidents], to identify meaningful correlations between tasks and incidents/accident occurrences, to identify trends in changed rates of incidents and accidents; and (2) to develop a standard reporting template from the "SORTMASTER," a reporting function of the "RISKMASTER," which will be used in generating ongoing trend reports.

The first research objective is to find any trends in the occurrence of injuries and accidents that provide valuable insight to achieve ongoing improvement in overall OSH performance by closely looking into various aspects of all recorded incidents and accidents during the period of analysis. By performing descriptive analysis on key performance characteristics, circumstances related to greater accidents and incidents are identified. This, in turn, will provide information to NCDOT on how to improve overall OSH performance. As suggested in the NCDOT Safety Policy & Procedure, changes in the occurrence rates of accidents and injuries are useful in determining areas in which more work in reducing and preventing injury to the workforce is needed. The use of a standard report form to track future incidents and accidents will make it easier for NCDOT to establish and refine procedures to prevent accidents, injuries, and illnesses. Thus, the second research objective is to develop a standard report form which does this.

The focus of this research effort did not include providing prevention strategies but rather involved (1) identifying key performance characteristics to track accidents and incidents occurrence, (2) identifying changing trends in incident and accident rates, and (3) developing a standard report form. However, the next logical step is to develop a set of recommended

safety practices to prevent high frequency incidents and accidents revealed through this research effort.

RESEARCH METHODOLOGY

Major steps involved in completing this research study are highlighted here in the order of their occurrence.

Kick Off Meeting

The research project began with a kick off meeting with the NCDOT research project steering and implementation committee members, the purpose of which was to clarify the project goals, methodology, and deliverables. Specifically, all performance characteristics to be included in the trend analysis that are related to the occurrence of accident and incident were discussed and identified. Means to gain access to “RISKMASTER Database” were discussed with the conclusion that the researcher uses the NCDOT Citrix server to access the database.

Familiarizing with the RISKMASTER Database

Full access to the RISKMASTER was given via NCDOT Citrix server. This remote access allowed researchers to log on to the database with full user function and to understand the structure of the database. Several on-site trainings provided by the Safety & Loss Control staff members further improved learning curve of the database.

Data Analysis

All incidents and accidents recorded in the RISKMASTER Database during the past five years of study period (2002 – 2006) were used in analyzing the trends. The database allows the user to separate information on incidents and accidents and by each of the 14 divisions. This separation by division allows the PI to identify each unit’s shared and unique safety concerns and risk factors. Data collected from the RISKMASTER were exported to Excel spreadsheet for in-depth descriptive analysis. Starting with the divisional level, each recorded accident and incident was scrutinized in terms of (1) its frequency (both); (2) accidents by equipment type and class (accident); (3) its detailed causational issues (both); (4) its date and time of occurrence (both); (5) personal information, such as age and gender (both); (6) dollar impact (incident); and (7) the body part injured (incident). At the end of the each divisional analysis, selected performance characteristics were combined for all 14 divisions and analyzed to find trends from a broader perspective.

The study performance characteristics selected for each category (i.e., accident and incident) are listed as below. The list went over several modifications based on the Project Steering and Implementation Committee’s input provided during quarterly progress meetings.

Study Performance Characteristics

Accident Analysis

Number of Accident
Equipment Type
Accident by Class
Accident by Cause
Time of the Day
Day of the Week
Month of the Year
Age
Gender

Incident Analysis

Number of Incident
Number of Injuries by Body Part
Dollar Loss by Cause of Injuries
Dollar Loss for All Claims
Time of the Day
Day of the Week
Month of the Year
Age
Gender

Standard Report Development

The second major research objective was to develop a standard report format that the Safety & Loss Control unit can use to track trends of the above listed performance characteristics in the future. This objective was met by using the reporting function of the RISKMASTER database called "SORTMASTER." Once all trend analysis was completed, the SORTMASTER format created to capture each performance characteristic's data was saved on a thumb drive for the use of NCDOT personnel for running future trend analysis.

Documentation

After the analysis was completed, the research team prepared a technical document which includes explanations on the resulting trend analysis and the research outcome. Safety & Loss Control OSH system management team can reference this document for proper risk management by identifying key risk area within the 14 NCDOT divisional operations and by implementing proper actions to mitigate key risk factors revealed.

Training Session for NCDOT Staff

A follow-up training session is scheduled for NCDOT staff to demonstrate the use of standard reporting format using SORTMASTER and how to generate report to track future trends of selected performance characteristics.

REPORT OVERVIEW

The remaining portions of this report address the results of the trend analysis (starting within each divisional level and then cross divisional level) for accidents and incidents, in that order. Specifically, analyses on accidents are first conducted on a divisional level and presented in the order as listed on study performance characteristics. Followed by each divisional analysis results are combined analysis results. Incidents analysis is conducted and presented in the order as accidents. Conclusions and recommendations including improvements and ideas for future research complete the report.

DESCRIPTIVE ACCIDENT ANALYSIS

Descriptive statistic used in this research combines graphical displays of the data which facilitate comparisons and tabular description in which tables of numbers summarize the data. A graphical and tabular summary of accidents in all of the 14 divisions, districts and offices of the NCDOT is provided in this section. Each accident is outlined according to the number of accidents in each division, accidents by equipment class, accidents by class, and cause. The accidents are further broken down with respect to time of the day accidents occurred, day of the week, month of the year, age and gender related to accidents involved. In perspective, an overview of accidents is presented in across 14 divisions, which projects the trend of accidents in all 14 divisions combined. The order of summary in across 14 divisional analyses is same as the individual divisional accident analysis.

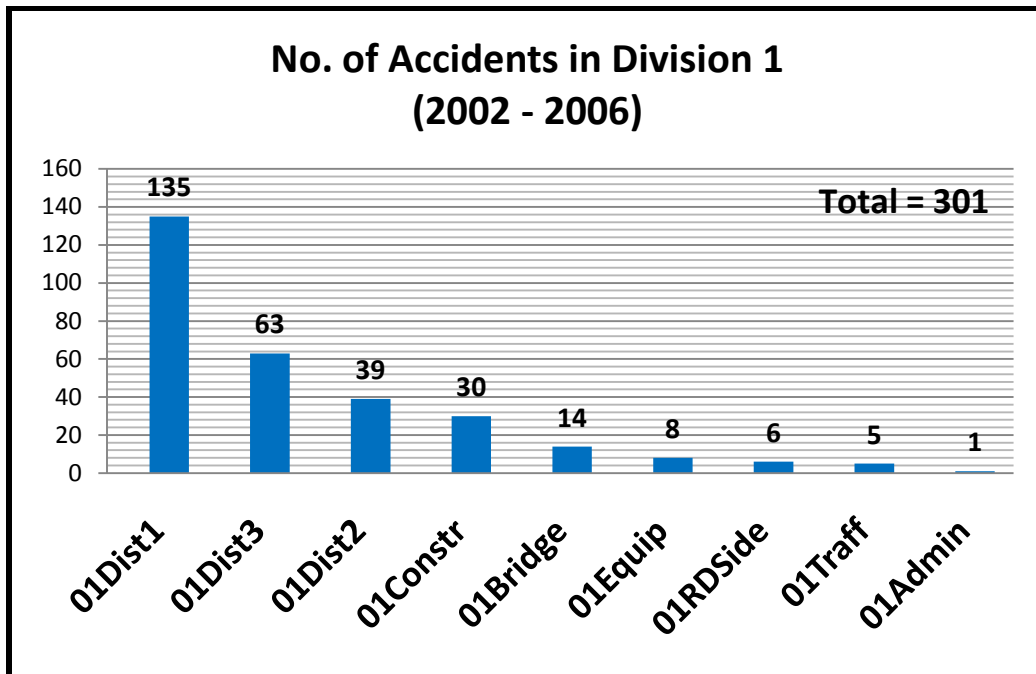
WITHIN EACH DIVISION

Within each NCDOT division, accidents are represented according to the division and several different units maintained by the division. Division units typically include construction, operations (roadside environmental & traffic services), and maintenance unit in three district levels that normally include equipment and bridge departments. Each of the accident data is represented by the actual equipment type, class, cause, time, day, month, and year including the resultant accidents. Each division is unique in its data analysis and performance during the study period.

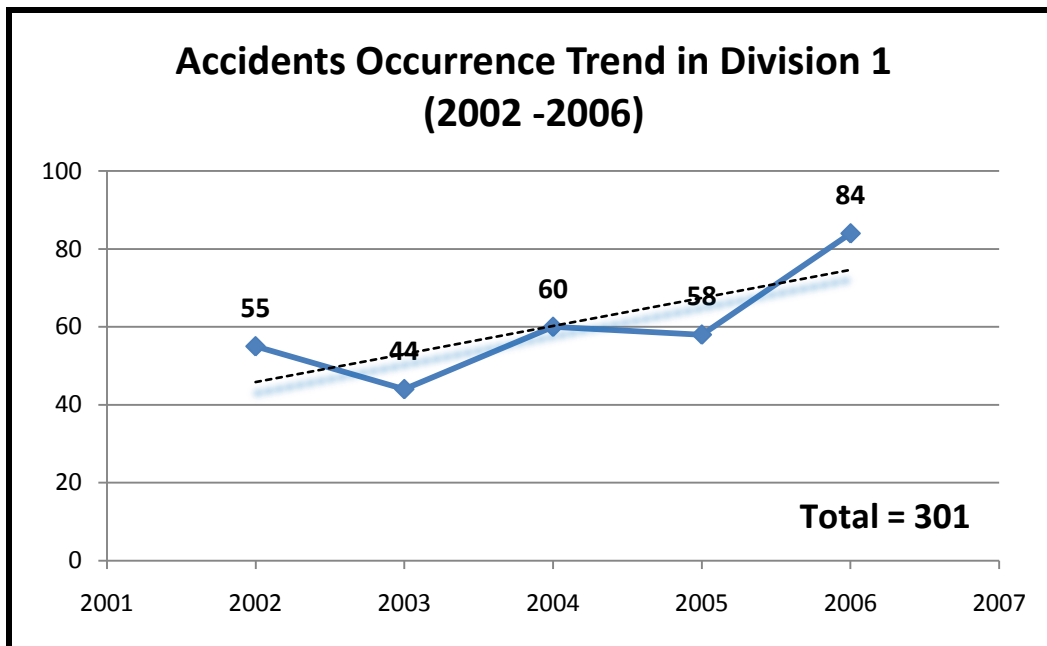
DIVISION 1

1. Number of Accidents

The total number of accidents recorded for Division 1 from 2002 to 2006 is 301. District 1 had the most accidents occurred with a total of 135, while the Administration office had the least accidents occurred. From District 1 to Administration office, chart below reflects the trend of accidents in a descending order.

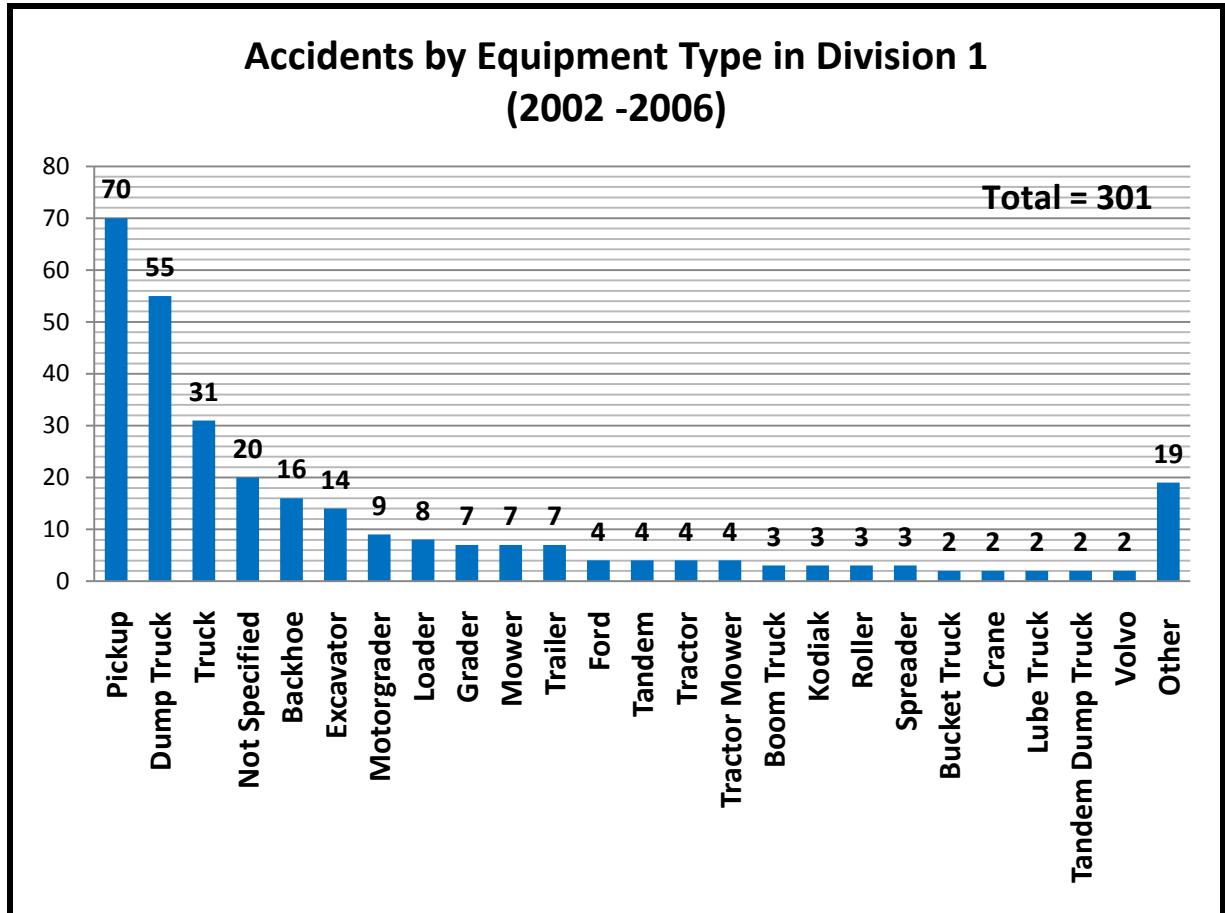


The graph below shows the trend line throughout the years for the number of accidents related to the year. The trend line indicates gradual increase of accidents from 2002 to 2006.



2. Accidents by Equipment Type

The total of 301 accidents occurred in Division 1 during the study period involved different equipment types as shown below. About half of the accidents occurring in Division 1 involved different types of truck with “Pickup” bearing the most accidents. In perspective, pickups performed more traffic activity, followed by other trucks.

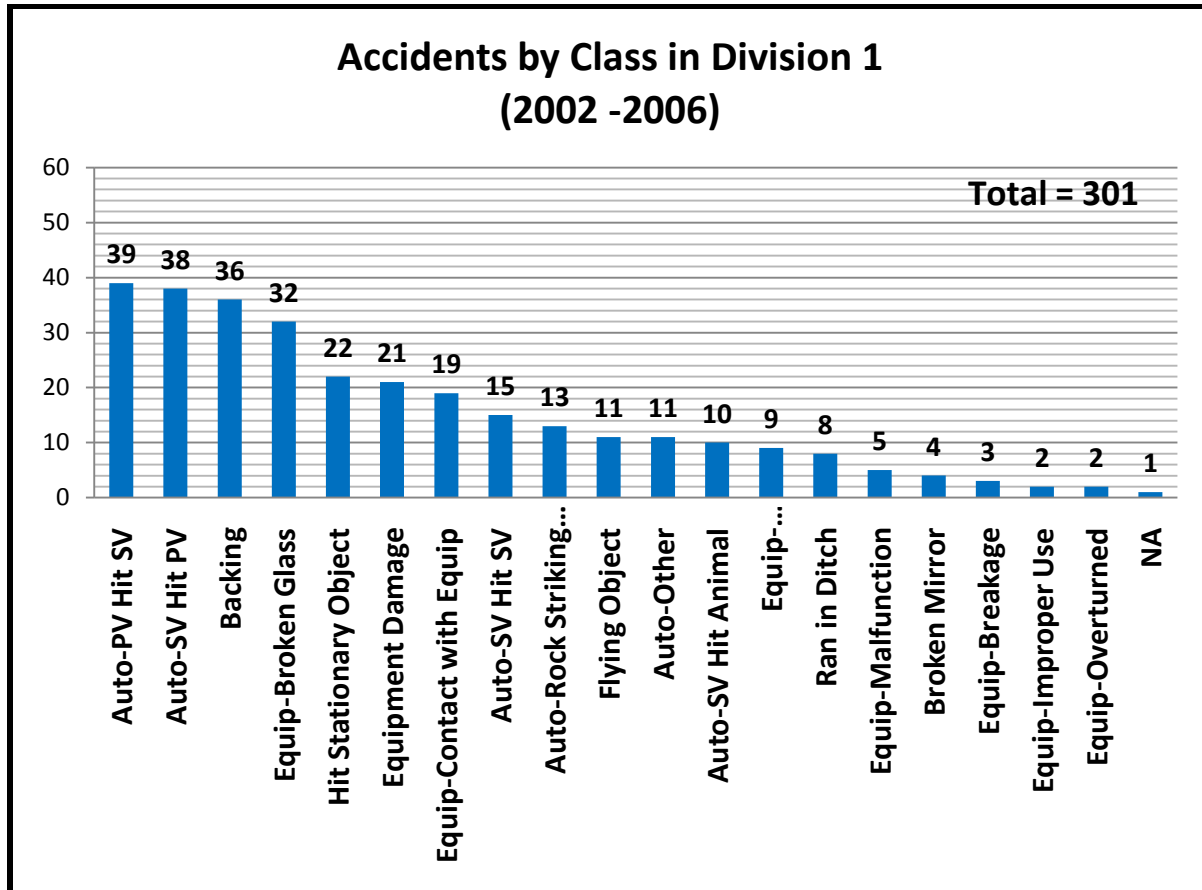


Nineteen equipments classified as “Other” are listed below.

A-boom mower	Lowboy tractor	Station
Air Compressor	Mack	Suburban
Arrow board	Plow	Sweeper
Boom Tractor	Rand Roller	Track Backhoe
Broom	Salt spreader	Track Excavation
Compressor	Silverado	Tractor Crawler
John Deer		

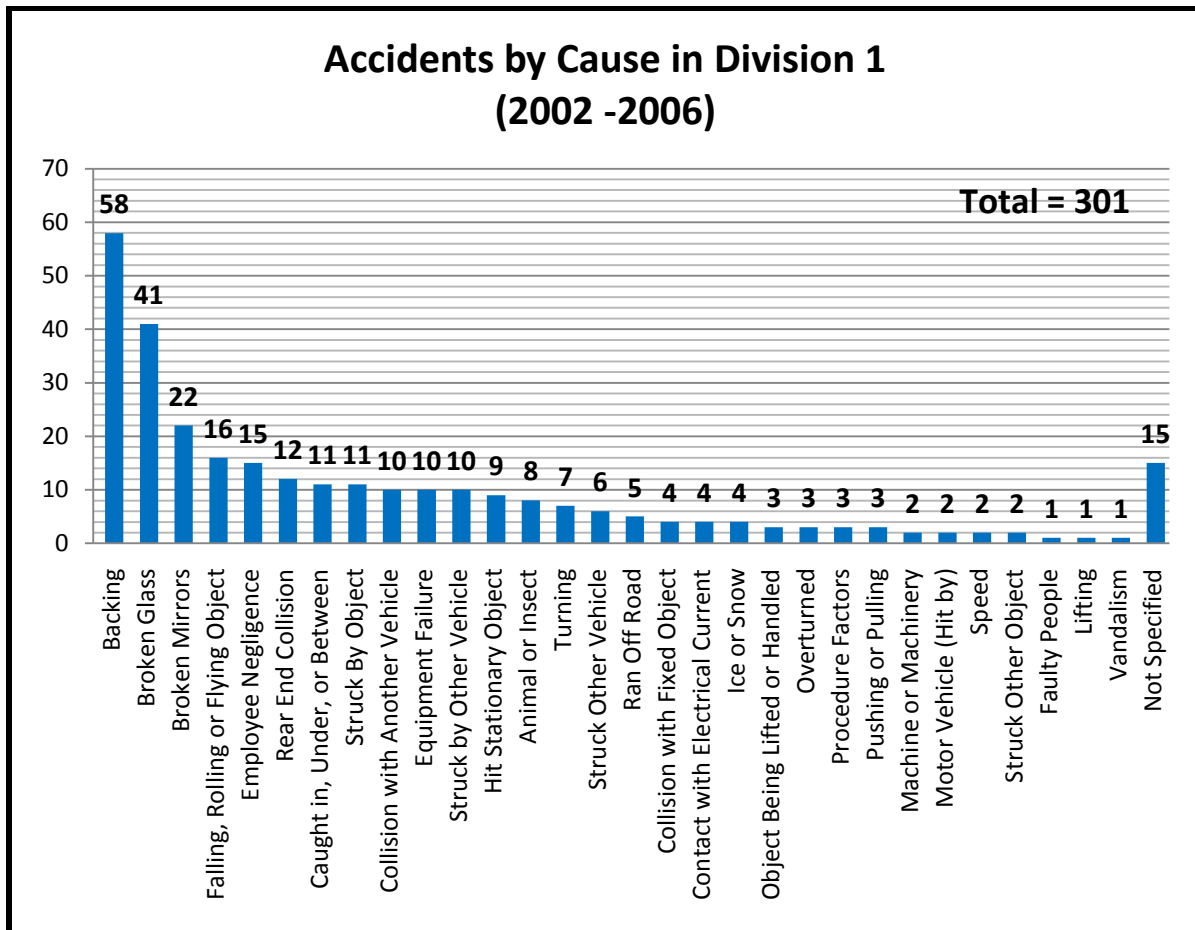
3. Accident by Class

In identifying accidents in Division 1 by class, auto-related accidents (private vehicle hitting state vehicle, state vehicle hitting private vehicle, or backing) combined picked up the highest number of accidents with a total of 113. Chart below shows accidents by class in detail.



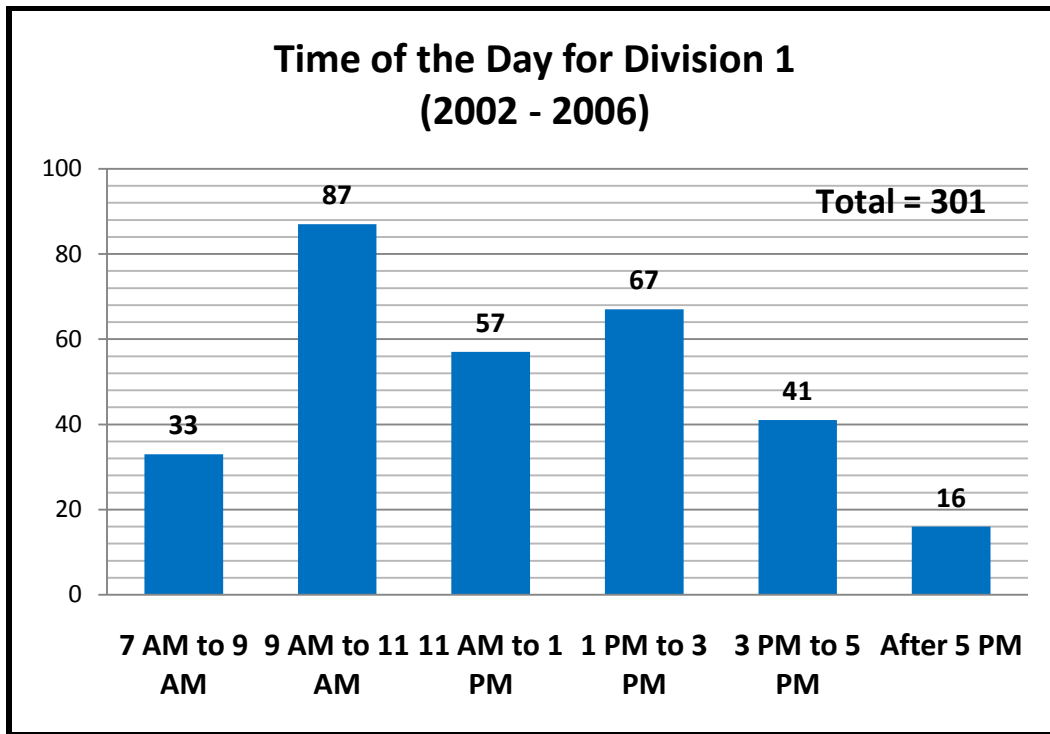
4. Accidents by Cause

The highest cause of accidents in Division 1 came from “Backing” followed by “Broken glass,” and “Broken mirror.” Accidents caused by “Falling, rolling, or flying objects,” “Employee negligence,” and “Rear end collision” in that order, followed the first tier accident causes. “Faulty people,” “Lifting,” and “Vandalism” were in the lowest tiers of accident causation. Also, note that 15 accidents are recorded without their cause being specified. The graph below represents accidents according to their causes.



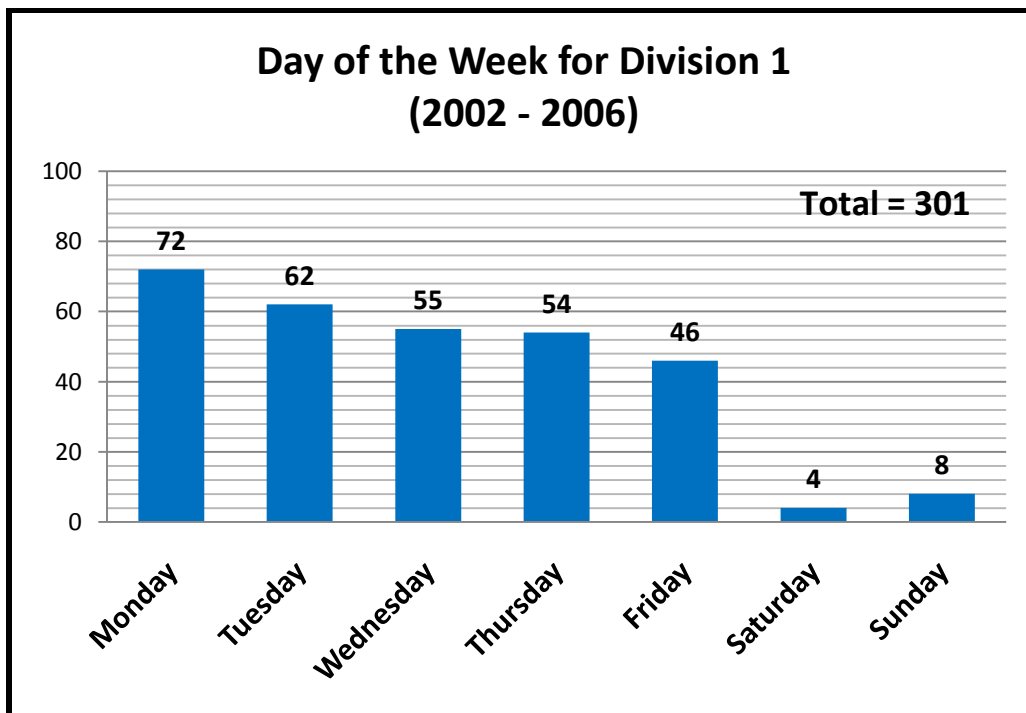
5. Time of the Day

The graph below presents time of the day that all accidents in Division 1 occurred. Most accidents occurred in the morning between the hours of 9 AM to 11 AM with a total of 87 accidents, while the time frame of 1 PM to 3 PM had second most accident occurrence with the count of 67. A total of 16 accidents occurred after 5 PM and before 7 AM the following morning, indicating significance of nighttime accidents.



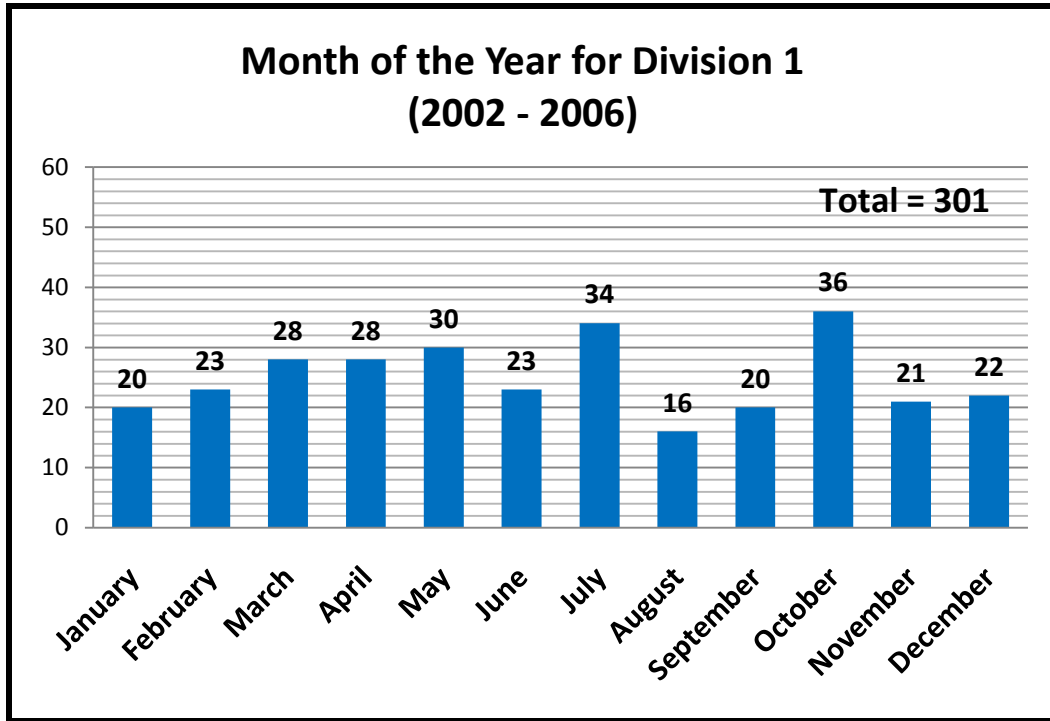
6. Day of the Week

Division 1 had the most accidents by day of the week occurring on Monday followed by Tuesday, Wednesday, Thursday, and Friday respectively. Although less in magnitude, 12 accidents occurred during the weekends.



7. Month of the Year

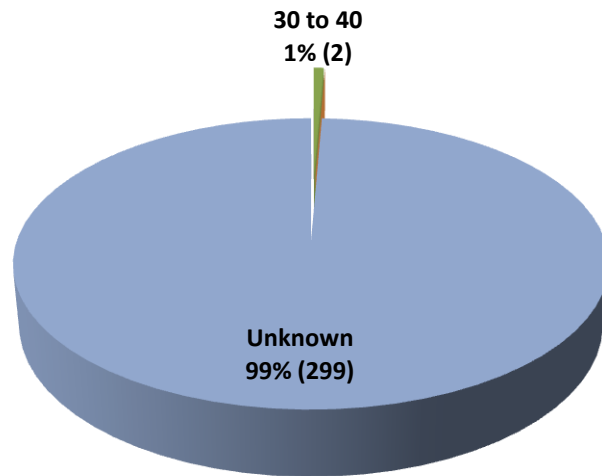
In analyzing month of the year accidents occurring in Division 1, the month of October had the highest number of accidents with a sum total of 36 followed by July with 34. In third place, the month of May scored a total of 30 accidents. The month of August recorded the lowest accidents with a total of 16.



8. Age Group

As can be inferred from the chart below, age related information is not clearly captured, with 99 percent being unknown. Parties involved in the accident should make more rigorous effort to provide accurate information when reporting the case.

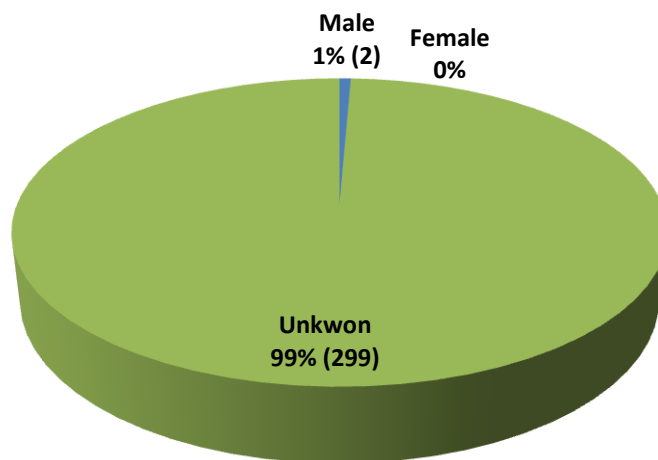
Accidents by Age Group for Division 1 (2002 -2006)



9. Gender

Most of the Division 1 accidents information captured from RISKMASTER lacked accuracy in gender-related information. The “Unknown” was introduced because the analysis did not reveal specific gender information from the database (column being empty).

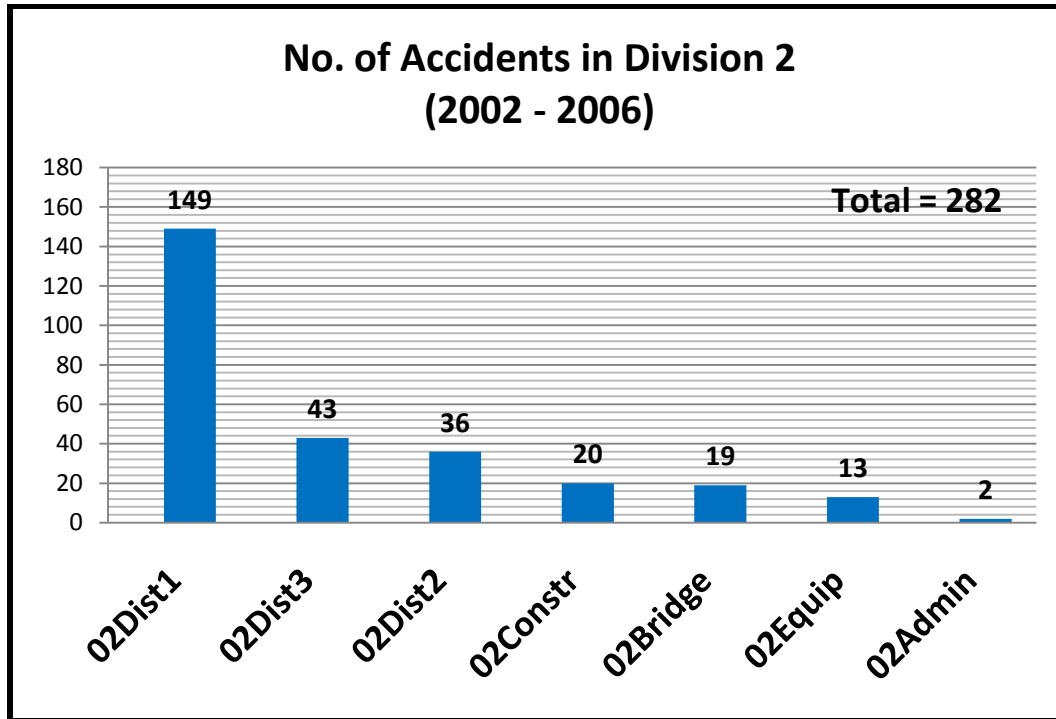
Accidents by Gender for Division 1 (2002 - 2006)



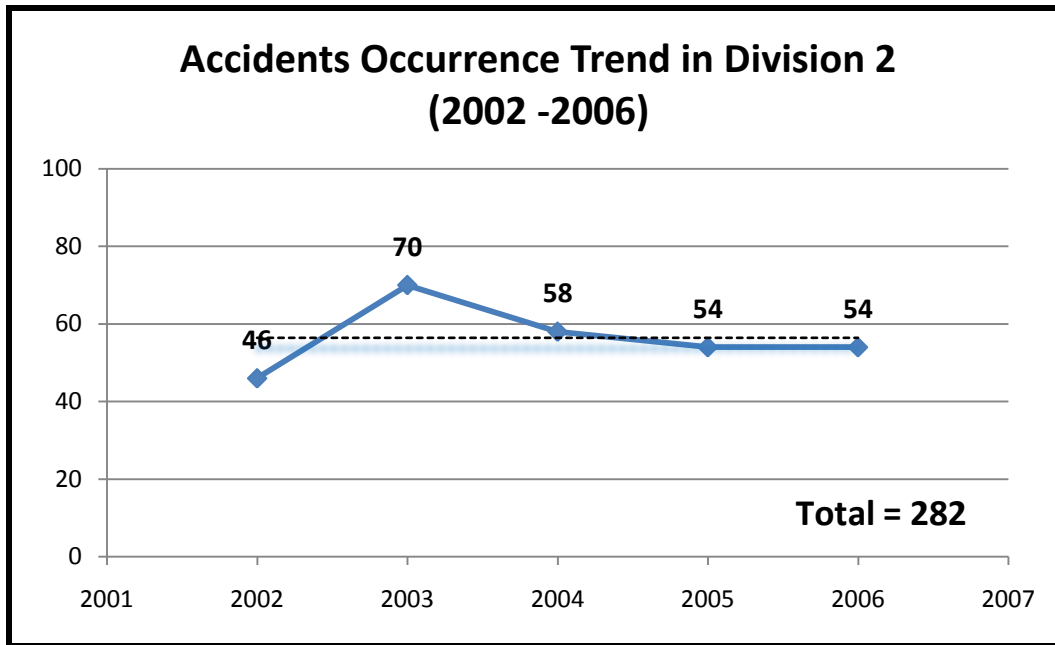
DIVISION 2

1. Number of Accidents

With respect to the analysis, the total numbers of accidents for Division 2 within the study period (2002-2006) are 282 accidents. District 1 had the most accidents with 149 accidents, preceded by Districts 2 and 3 with 48 and 36 respectively. The Administration had the least accidents. The chart below reflects the trend of accidents in a declining order.



Except for the year 2003 with the total accidents of 70, remaining study period shows less fluctuation in the number of accident occurrence. Flat trend line reflects this statement.



2. Accidents by Equipment Type

In Division 2, a total of 282 accidents by different equipment types occurred during the period of 2002 to 2006, with “Pickup” bearing the most accidents. In perspective, similar to Division 1 result, pickups performed most roadside activities, followed by tandems and dump trucks.

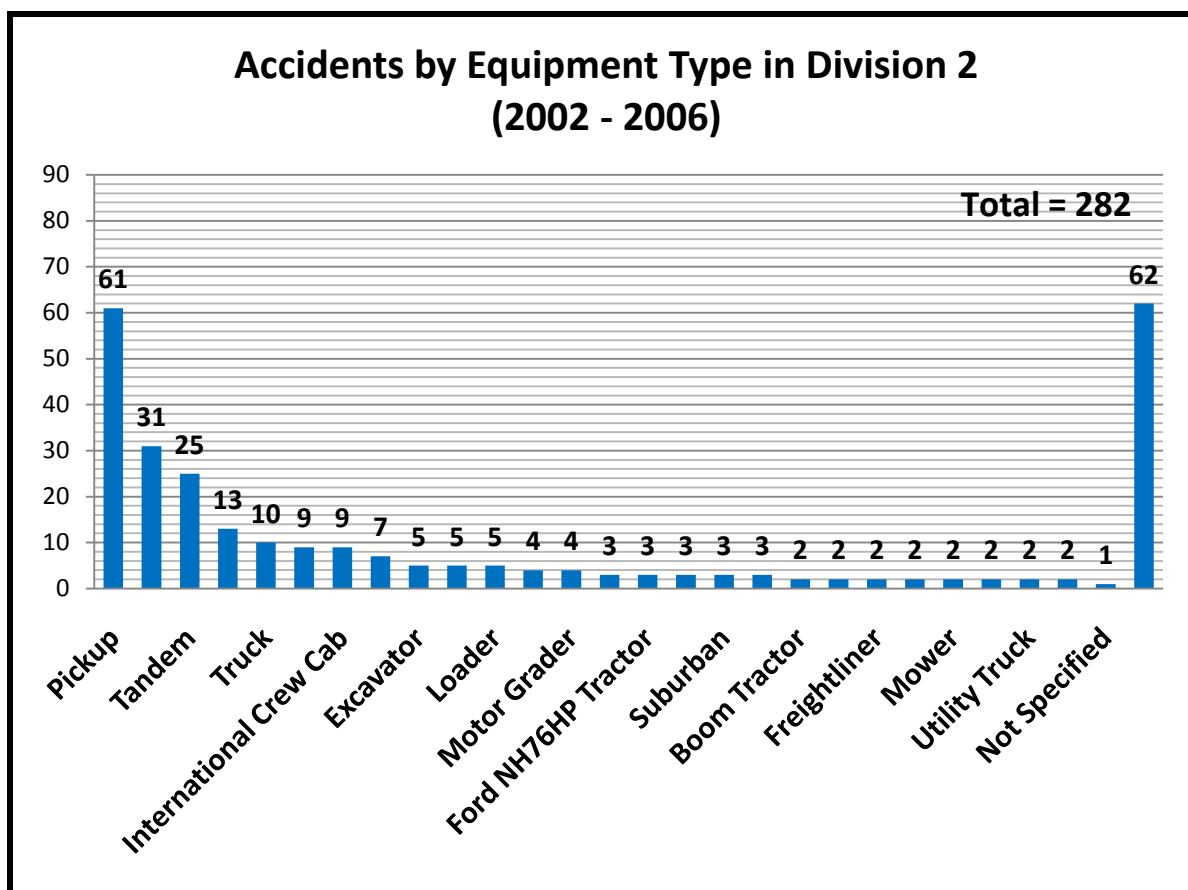
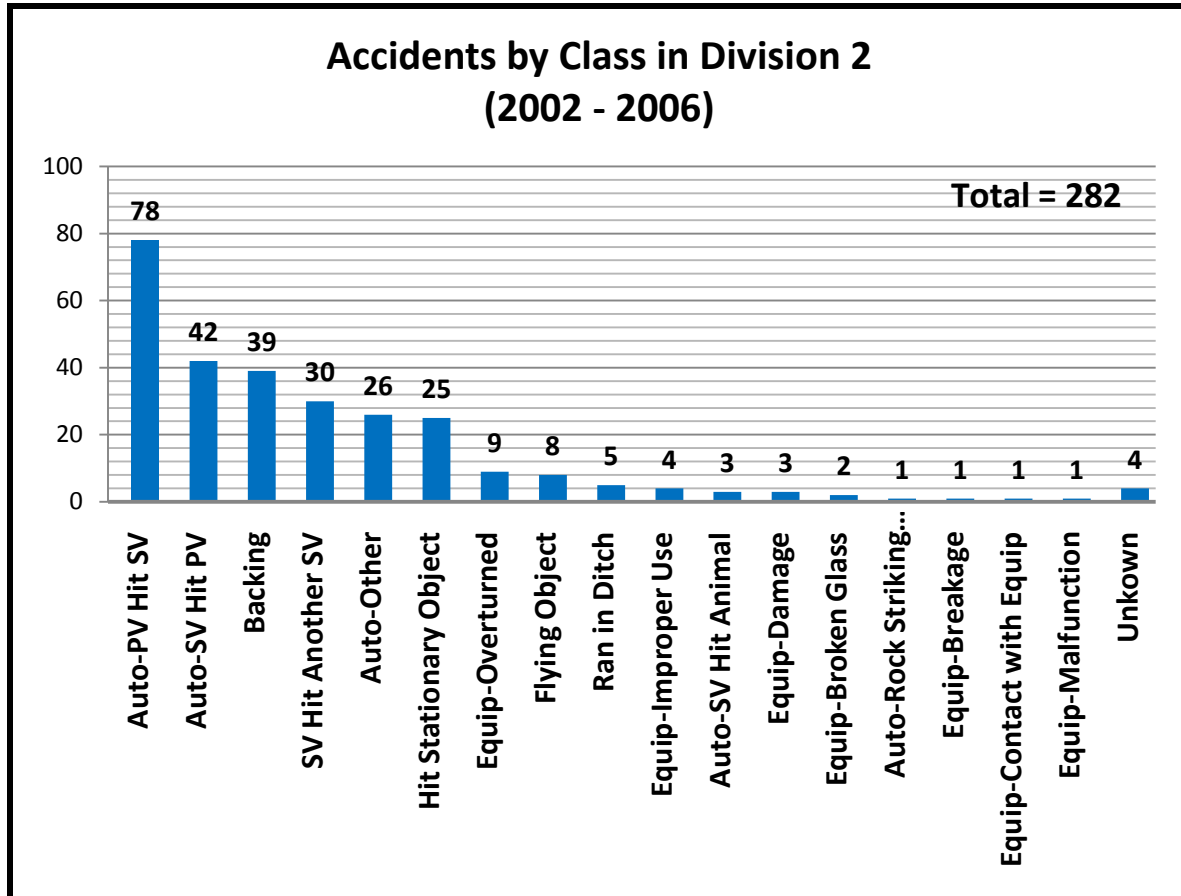


Table below shows 62 equipments listed as “Others.”

4300	Case Excavator	Hydrolic
4700	Case Truck/Isometrics	Hyundai
6420	CAT	INH Tandem
7500	Catepillar 320	Internaitonal Truck 50,000
9000	Chav Asphalt Tank (Tar Kettle)	John Deere
10-Wheeler	Chevy 1-Ton	Link Belt Crawler Crane
15000GVW Truck	Chevy Rollback	Link Belt Excavator
20 Ton Trailer	Chevy Truck 28000	Lowboy
250/M Air Compressor	Chip Spreader	Lube Truck
320C	Class Code 4241	Paint Machine
3500HD	Dresser 850	S-150
4 x 4	Dresser Grader	S1500
4700 Flat Bed	Dresser Roller	Sign Truck
50 Ton	Eager Beaver Drop Deck Trailer	Spreader Widner
A-Boom	Fermac	Sterling
Asphalt Kettle	Ford One-Ton	Sweeper
Badger 1085C	Front End Loader	Swenson
Briggs, Case CS210	Fuel Truck	Tanker
Bus	GMC	Van
Case	Grader Attachment	Volvo Grader
Case 1085C	Hyd. Excavator	

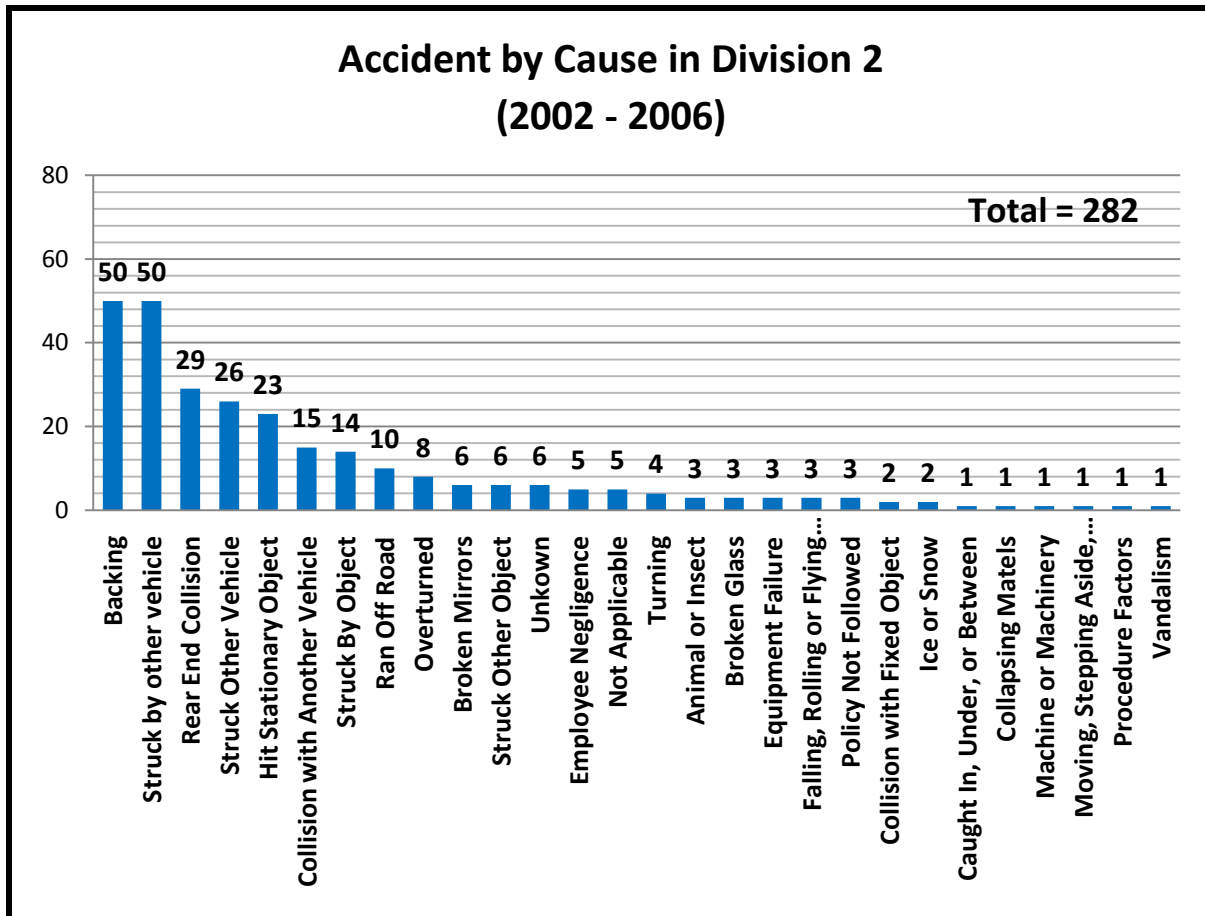
3. Accident by Class

In analyzing accidents by class data in Division 2, auto accidents, especially “Private vehicle hitting state vehicle,” had the highest records or 78 (28%). Similar auto accidents, “State vehicle hitting private vehicle” accidents were second on the list with the total of 42, while “Backing” related accidents had 39 records. The chart below summarizes accidents by class.



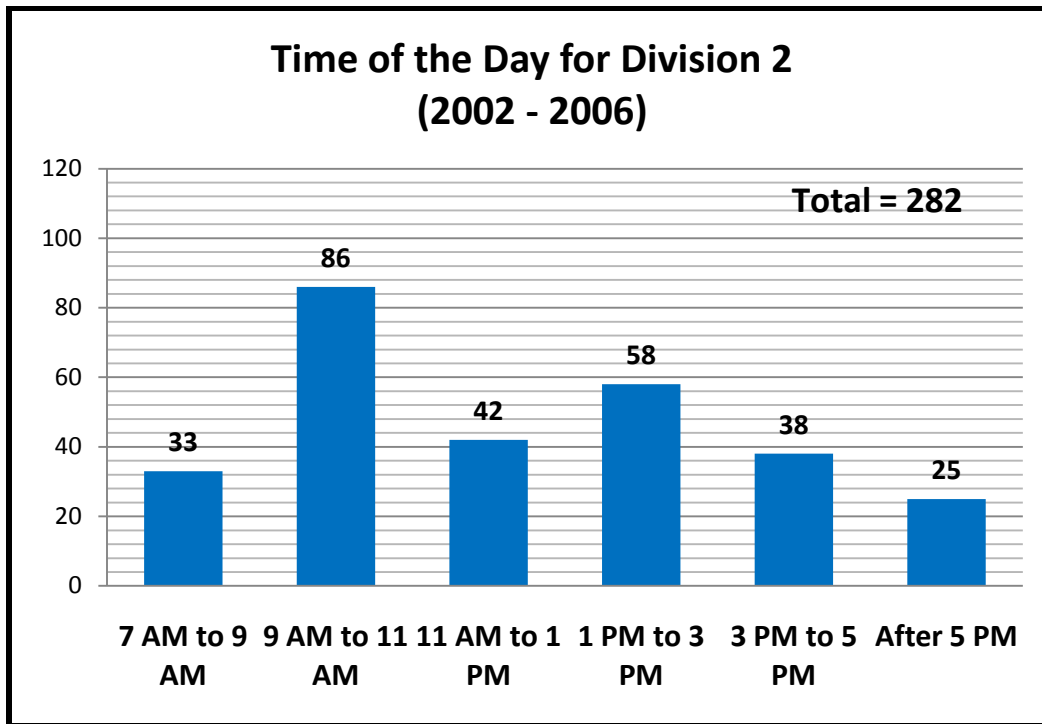
4. Accidents by Cause

The total number of accidents by cause in Division 2 was 282, and the highest cause of accidents came from both “Backing” and “Struck by other vehicle,” while “Rear end collision” followed with 29 accidents. The chart below summarizes accidents by cause in a descending order.



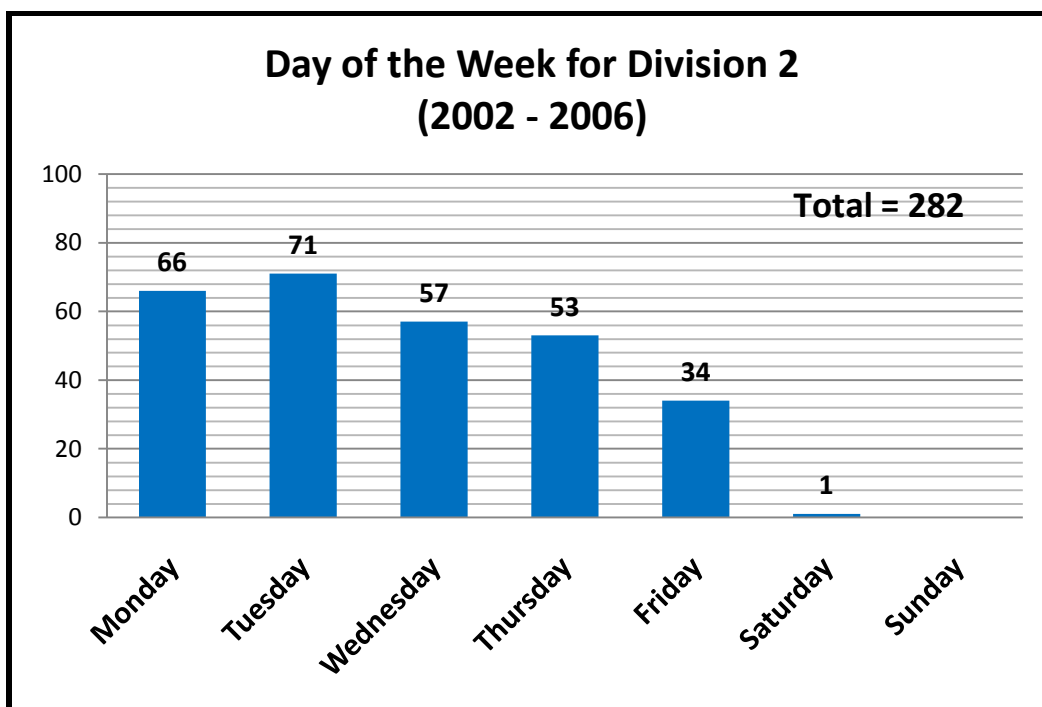
5. Time of the Day

Time of the day chart represents specific time frame that all accidents in Division 2 occurred. From the RISKMASTER database, most accidents occurred in the morning between the hours of 9 AM to 11 AM with a total of 86 accidents, while between 1 PM to 3 PM had next most accidents occurring at 58. The lowest numbers of accidents recorded are from 5 PM evening to prior to 7 AM the following morning.



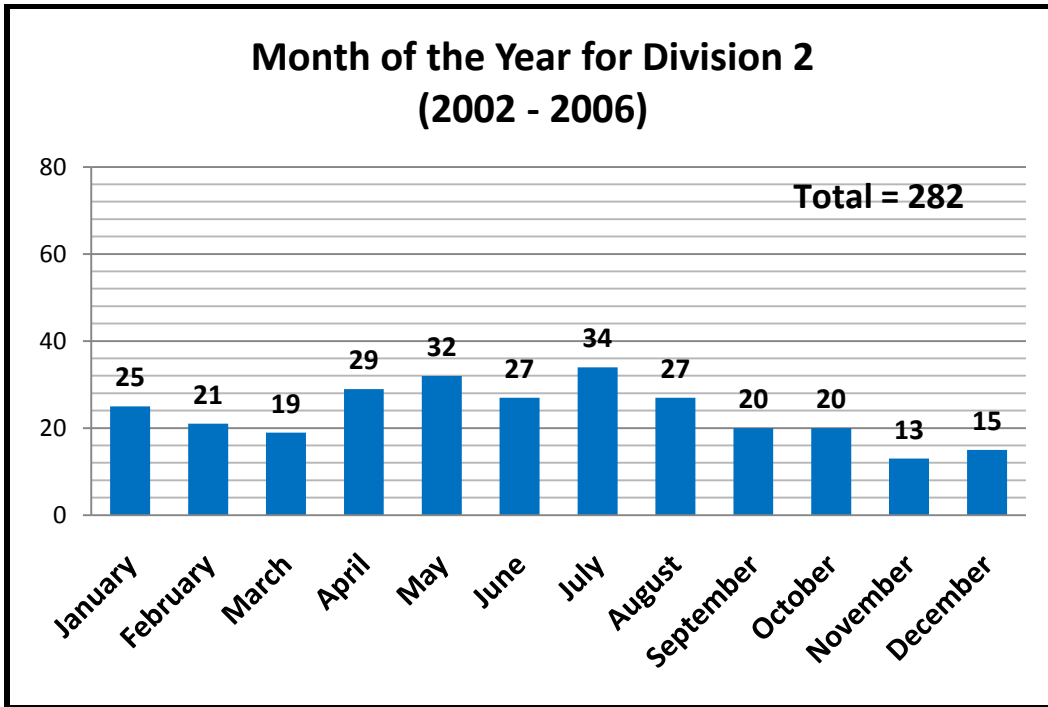
6. Day of the Week

According to the Day of the Week for Division 2, chart below shows that the majority of the accidents happened during the earlier part of the week. On Monday and Tuesday alone there are 137 accidents; whereas the rest of the week had a total of 145. The total number of accidents summed up to 282.



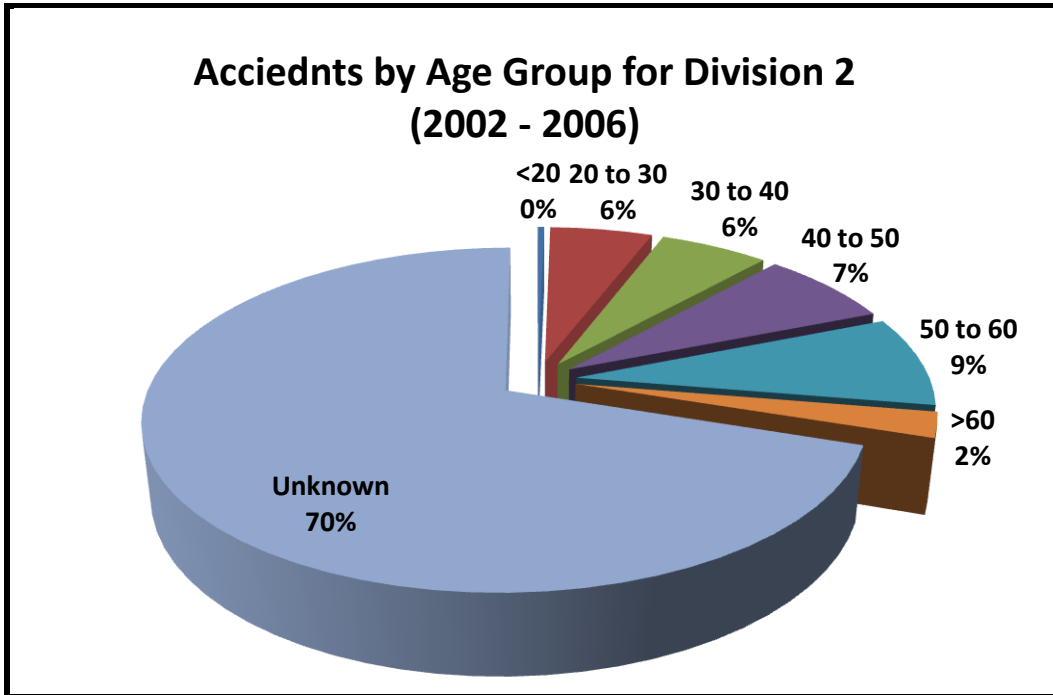
7. Month of the Year

The data below shows a fairly even spread of the number of accidents related to the month. However, there does seem to be a greater amount of accidents during the spring and summer seasons (April to August). The data displays that there were a total of 149 accidents within these five months, while during the other seven months there were only 133 accidents. The month of July had the greatest number of accidents with a total of 34, while November had the least amount of accidents with a value of 13.



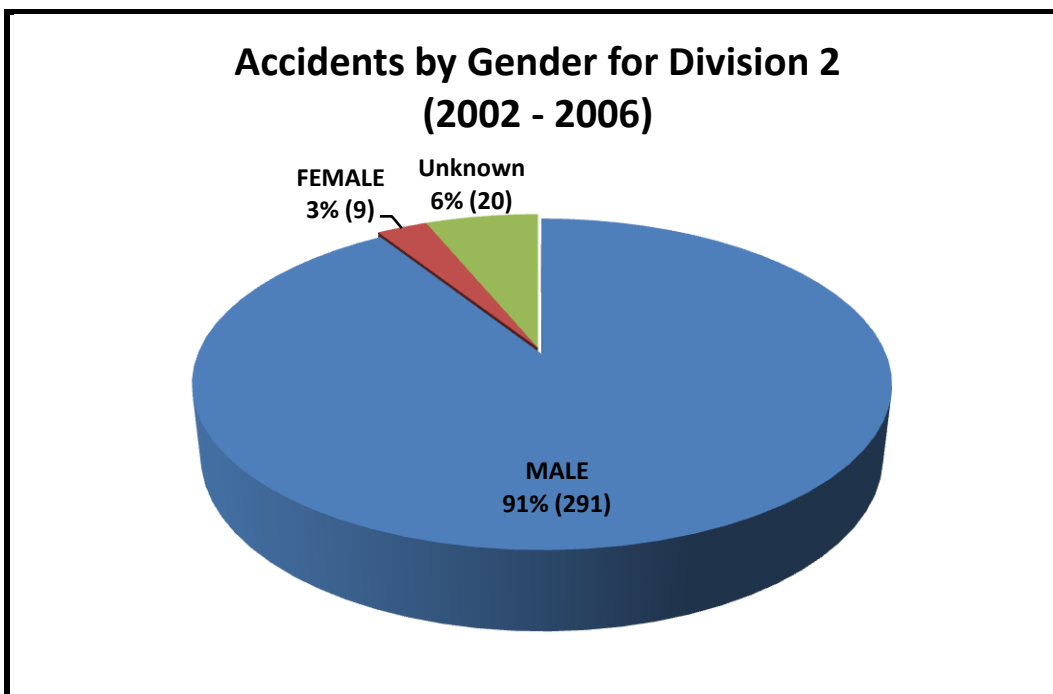
8. Age Group

Throughout the years of 2002 to 2006, the number of accidents in Division 2 has been broken down into various age groups. The age ranges of Division 2 were: less than 20 years old, 20-30 years old, 30-40 years old, 40-50 years old, 50-60 years old, greater than 60 years old, and an unknown age group. The less than 20 age class had the least amount of accidents with 0%, followed by greater than 60 years old with 2%. The greatest number of accidents occurred in the unknown age category with a percentage of 70%, followed by 9% in the 50-60 year old class. Again, there seems a problem with inaccurate data entry at the time of accident reporting.



9. Gender

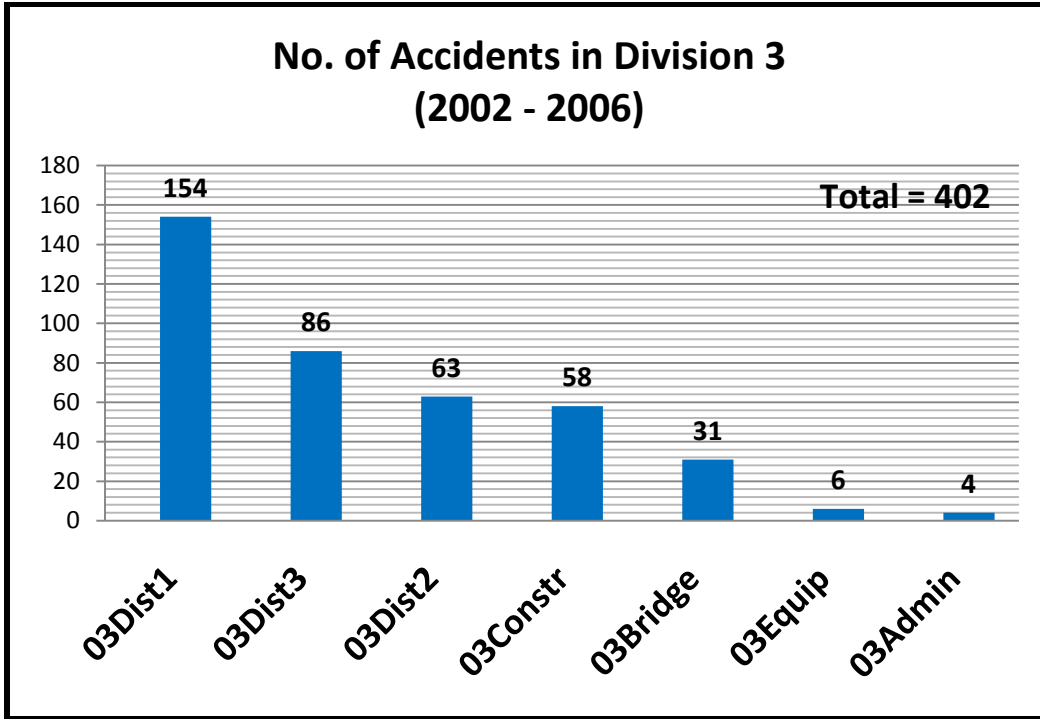
The chart below shows how the two genders relate in the number of accidents that occurred in Division 2. The chart has three different categories: male, female, and unknown. The male category had the highest value with 91%, while the female category had the smallest value of 3%. The data shows that men were at fault the majority of the time, but that may be due to the ratio of men to women operating various machinery and vehicles.



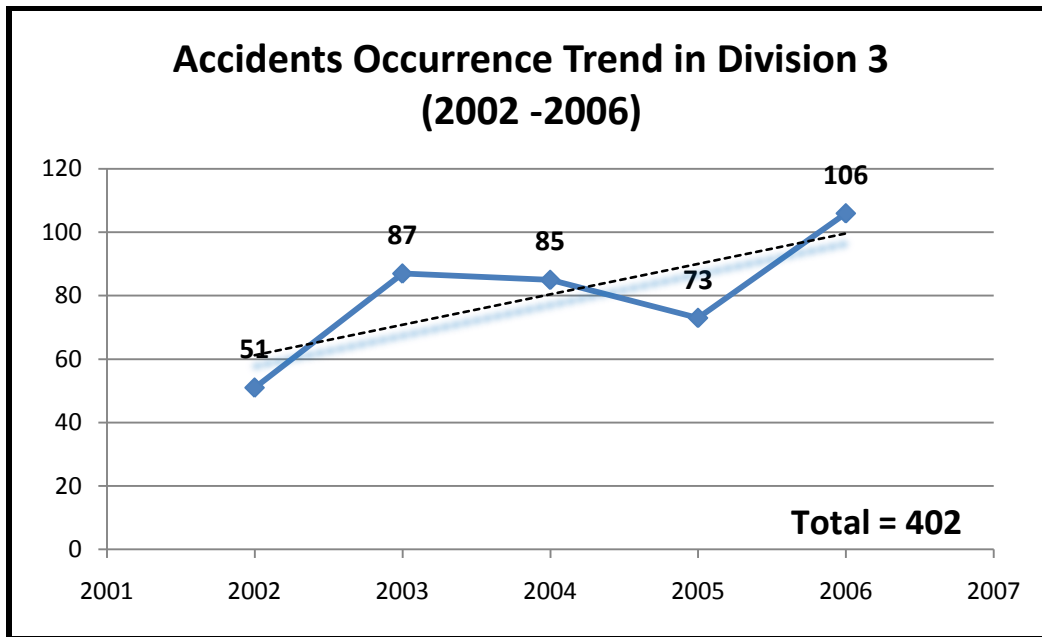
DIVISION 3

1. Number of Accidents

The chart below shows the number of accidents that occurred in Division 3. The total number of accidents in Division 3 summed up to a value of 402. District 1 had the greatest amount of accidents with a total of 154 accidents, while the Administration had the least amount with only 4. The chart shows the values in descending order.

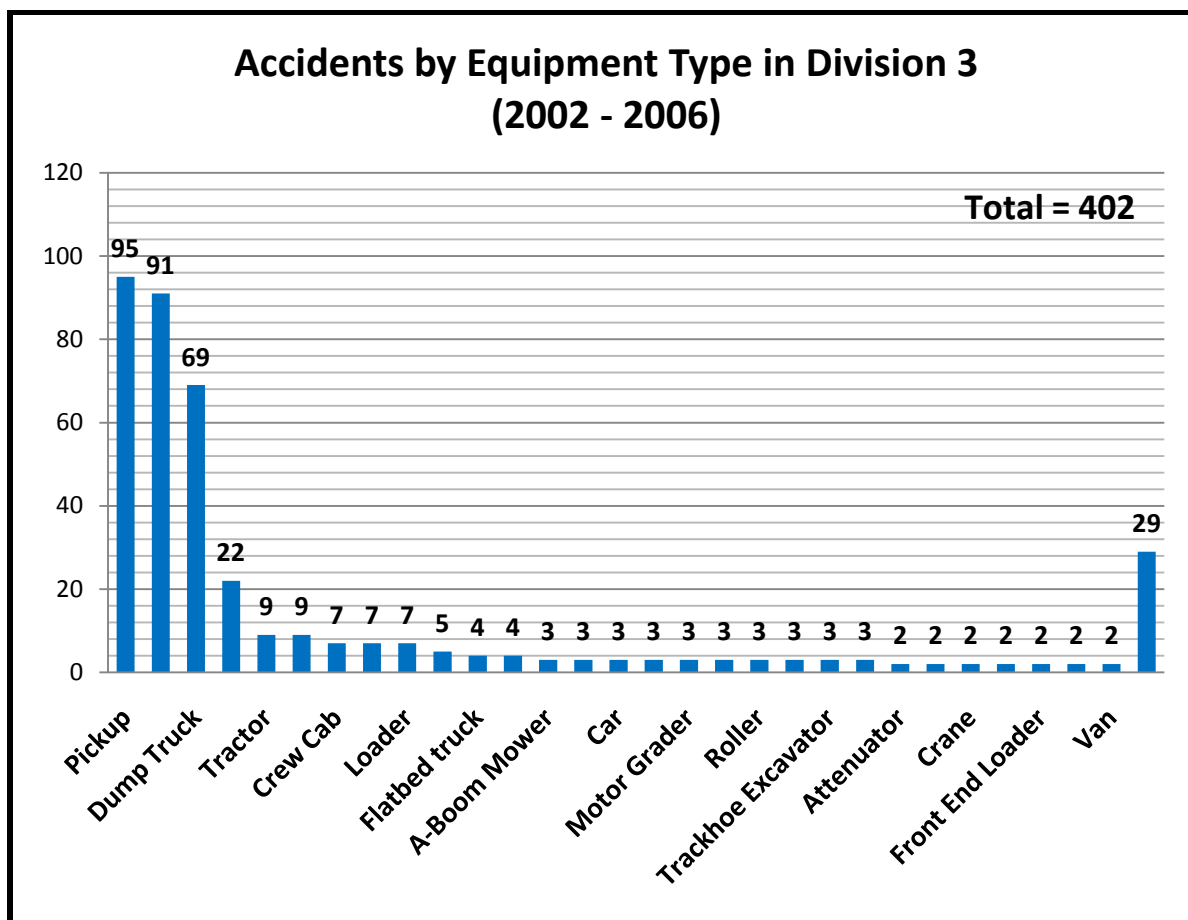


The number of accidents doubled in 2006 with the total of 106 compared to 51 in 2002. This is an increase of 33 accidents from 2005, which experienced gentle decrease in the number of accidents compared to previous years of 2004 and 2003. The chart below depicts ascending trend line from 2002 to 2006.



2. Accidents by Equipment Type

The accidents in Division 3 were also categorized into what type of equipment was at fault. According to the chart below, “Pickup” (95 accidents), “Truck” (91 accidents), and “Dump Truck” (69 accidents) had the greatest amount of accidents. These three categories accounted for 63 percent of the total accidents that occurred from 2002 to 2006. These three categories also have the greatest amount of activity among the different equipment types.

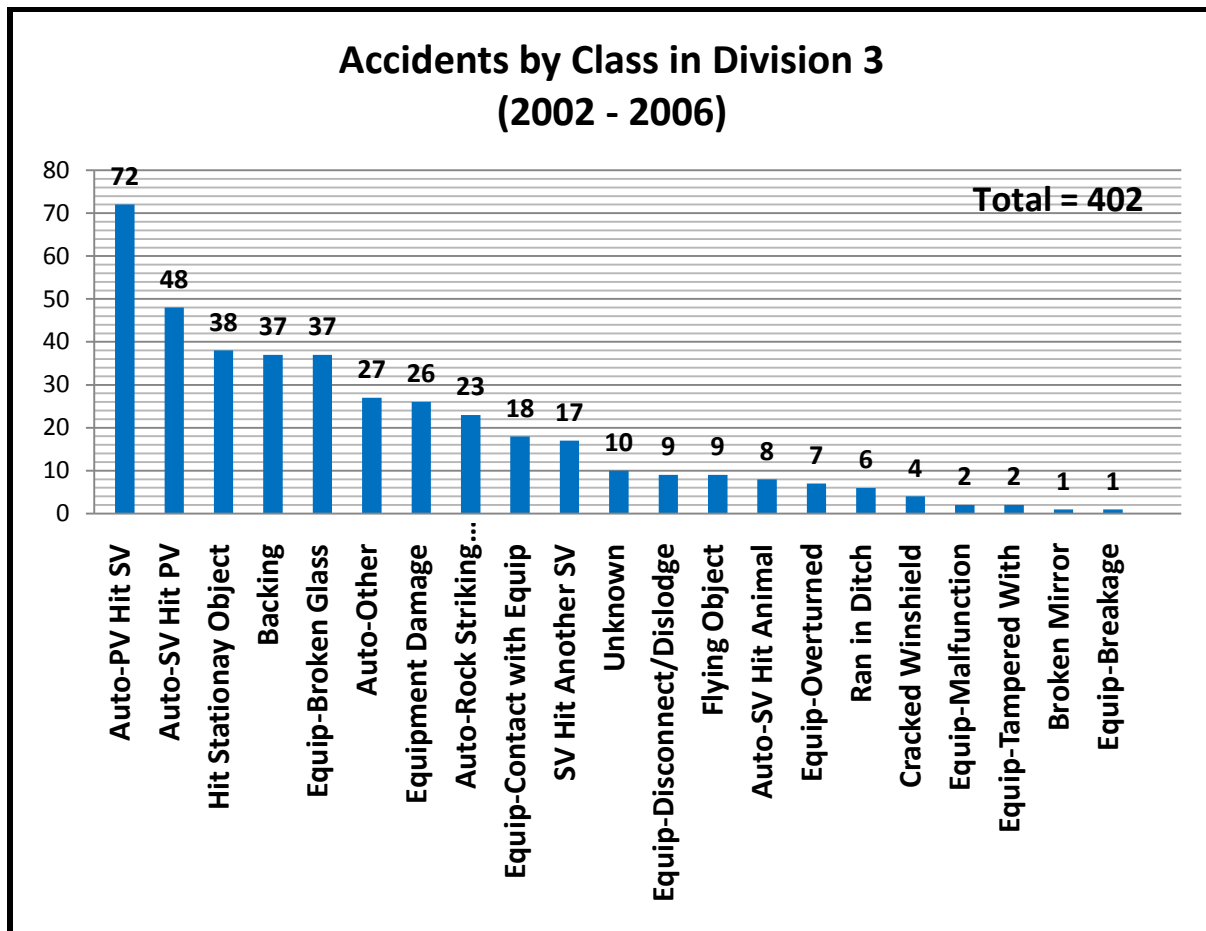


The equipments that make up the “Other” category are listed in the table below.

10 Ton Trailer	Explorer	Sign
7500 GVW Pickup	Extended Cab Pickup Truck	Spreader
Arrowboard	Forklift	Stomper
Belt Loader	Intrepid	Tahoe
Cement Mixer	Jack Handle	Tanker
Cherokee	Line Truck	Tire Roller
Chip Spreader	n/a	Tractor Broom
Cord	Pax Van	Truck Distributor
Distributor Truck	Rodder	Utility Truck
Durango Truck	Shadow Truck	

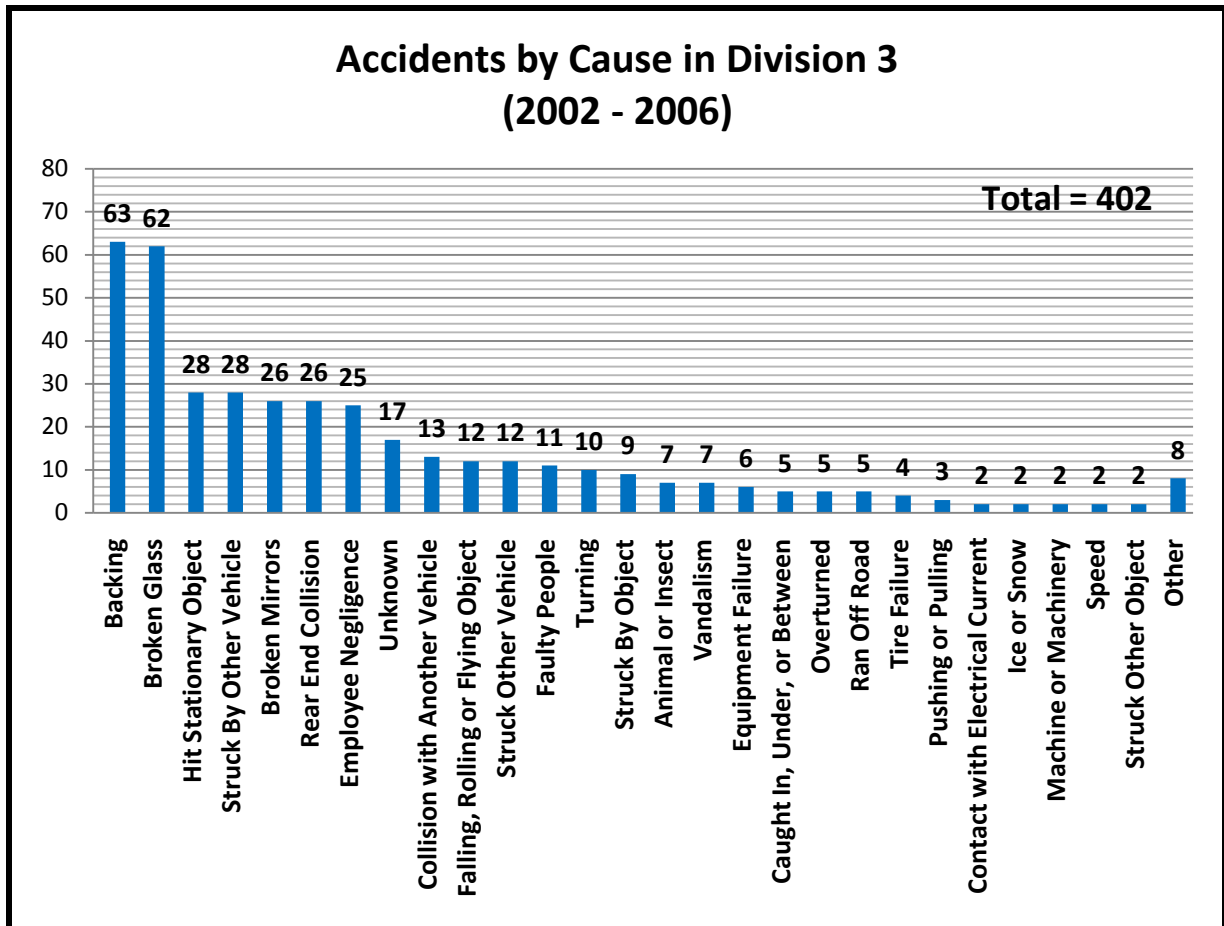
3. Accident by Class

“Auto PV hitting SV” and “SV hitting PV” again had the greatest number of accidents with a total of 120. The next largest values were: “Hit a stationary object,” “Backing,” and “Equipment/Broken glass” with a total of 112. The least amount of accidents was in the “Broken mirror” and “Equipment breakage” categories with 1 accident each. The graph displays the data in a descending order.



4. Accidents by Cause

The chart below relates the accidents with their cause in Division 3. Throughout the study period of 2002 to 2006, the leading causes of accidents were “Backing” (63 accidents) and “Broken glass” (62 accidents). The fewest accidents occurred due to “Contact with electrical current,” “Ice or snow,” “Machine or machinery,” “Speed,” and “Struck other object,” each with 2 accidents.

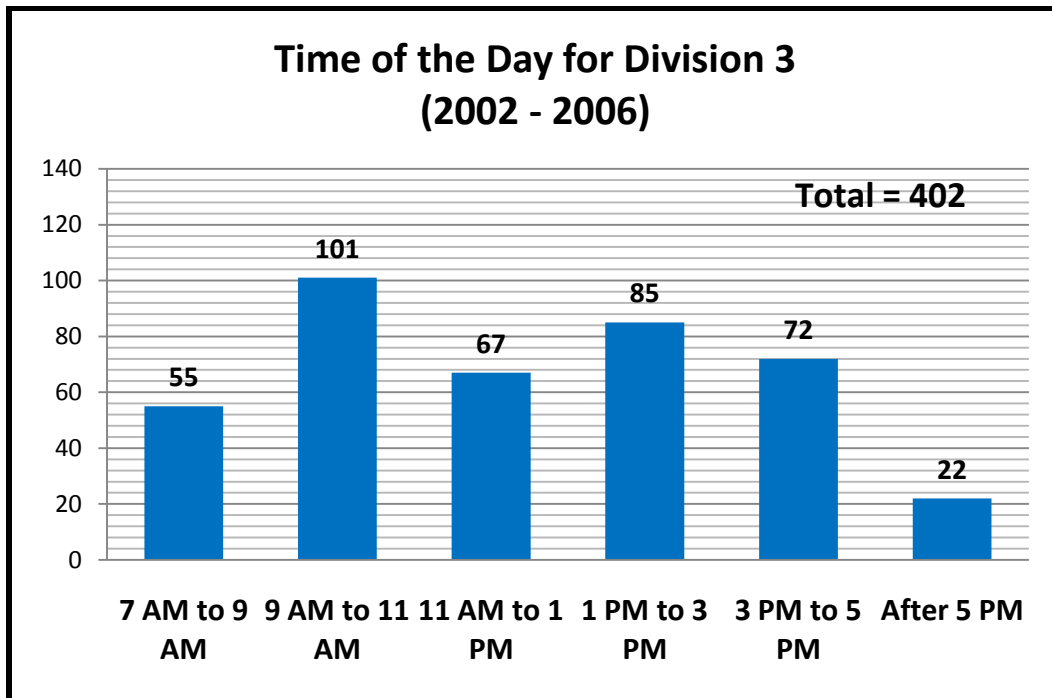


Causes of accidents that make up the “Other” category are listed in the table below.

Allergic Reaction/Rash	Lifting
Collision with Fixed Object	Motor Vehicle (Hit by)
Dizzy, Fainted, Passed out	Moving, Stepping aside, Turning
Ladder or Scaffolding	Pothole

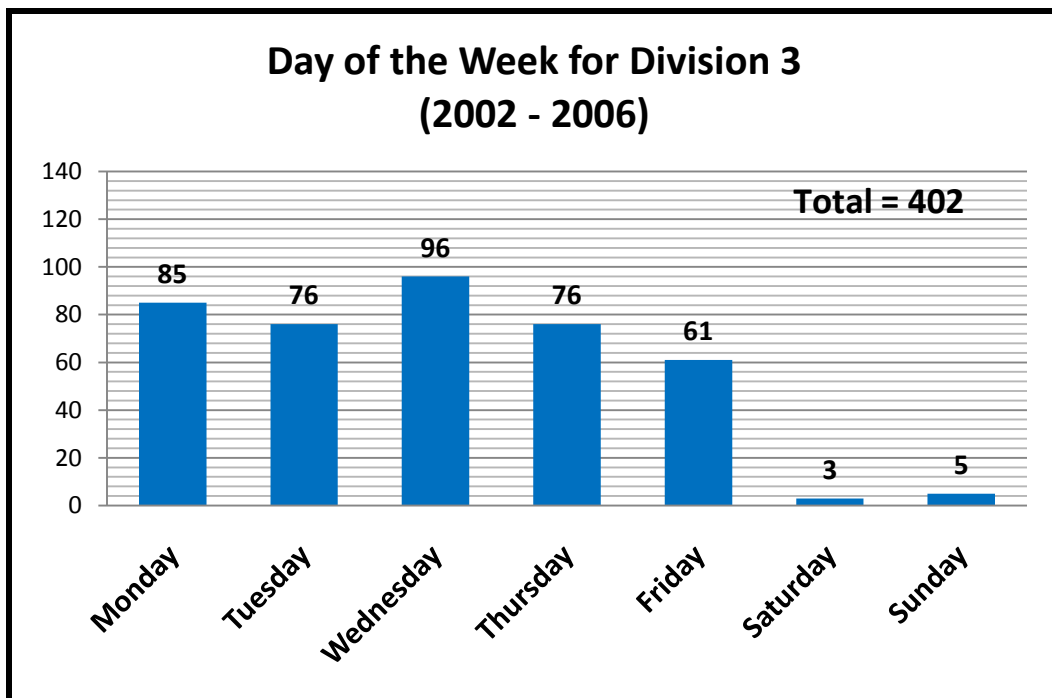
5. Time of the Day

The graph below displays the accidents in Division 3 separated into different time periods. The greatest amount of accidents occurred from 9 AM to 11 AM with a number of 101 accidents. The next largest occurred from 1 PM to 3 PM with 85. These accidents could be related to the number of people going into or leaving from their place of business. The fewest accidents were after 5 PM with 22 occurrences.



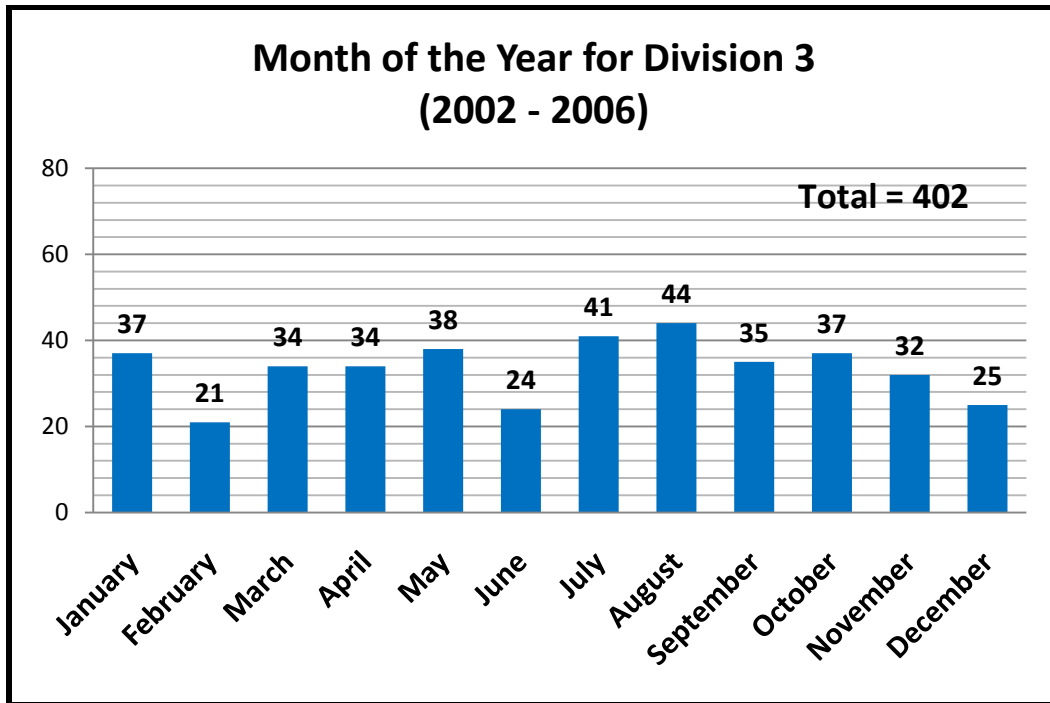
6. Day of the Week

The chart below shows the accidents by the day of the week. In the previous divisions, the accidents happened in the early part of the week, while Division 3 had more towards the middle of the week. In Division 3, the day with the highest amount of accidents was Wednesday with 96 accidents. A close second was Monday with 85 accidents. The fewest number of accidents were on Saturdays with 3 accidents total.



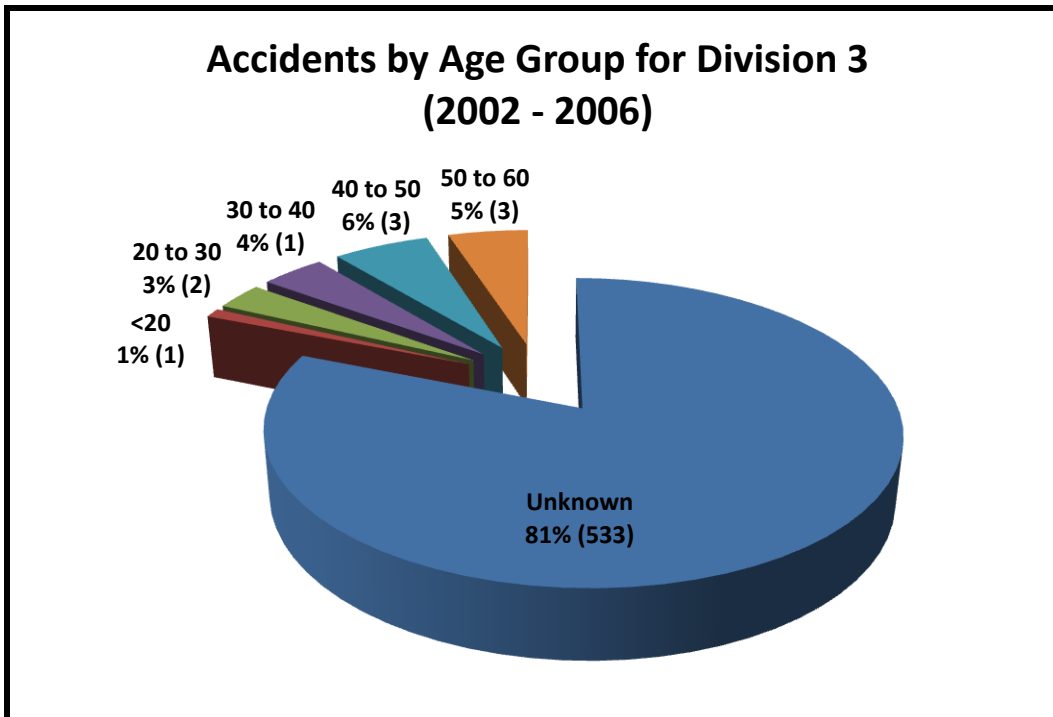
7. Month of the Year

In Division 3, the majority of the accidents occurred during the middle of the year. The two months with the highest amount were July (41 accidents) and August (44 accidents). The least number of accidents occurred during the month of February with 21 accidents. The graph shows that there is not a month that has a significantly larger number of accidents than any other months.



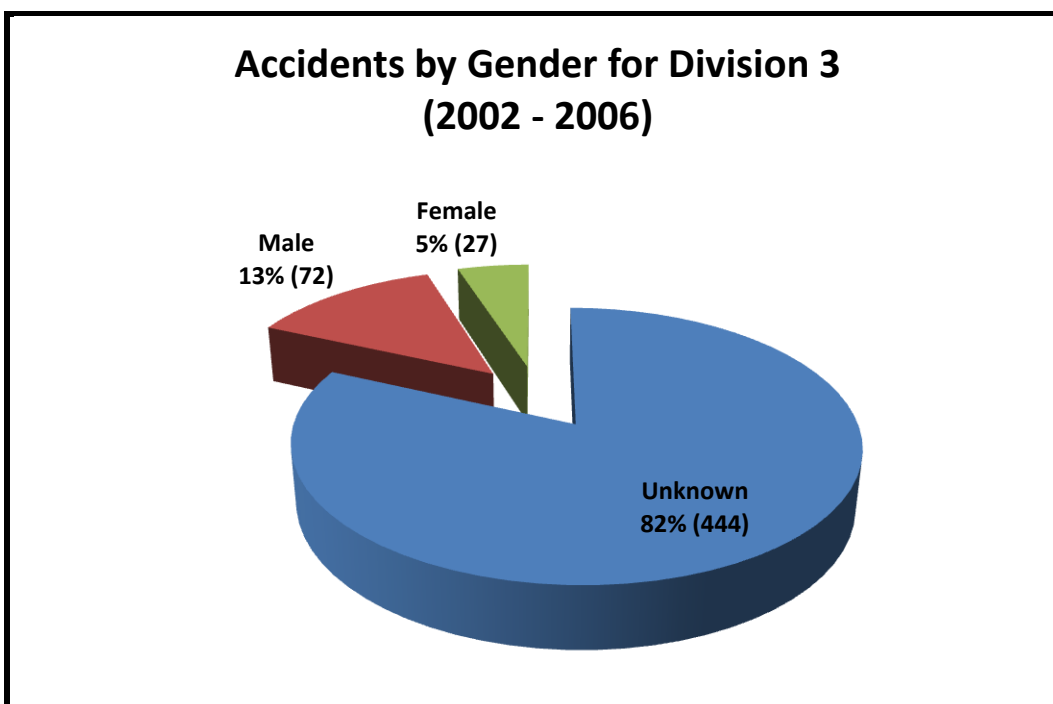
8. Age Group

The chart below shows the accidents in Division 3 broken down into six age groups. The largest portion of the graph is in the “Unknown” category with 81% of the accidents. This simply means that the age of the person was not recognized clearly. The next age group with the most accidents was the ages between 40 to 50 years old.



9. Gender

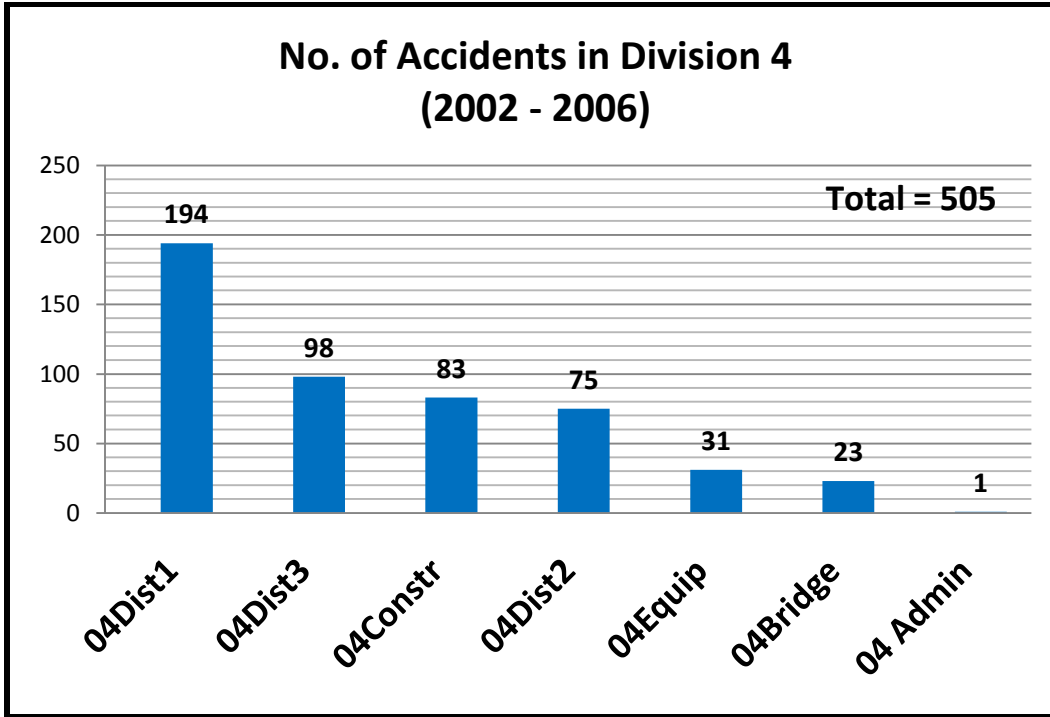
The chart below displays the data divided into different sexes. The data shows that males have 13% of the accidents while females only have 5%. The rest of the 82% was in the “Unknown” category. The “Unknown” category only means that the record was not given for these accidents.



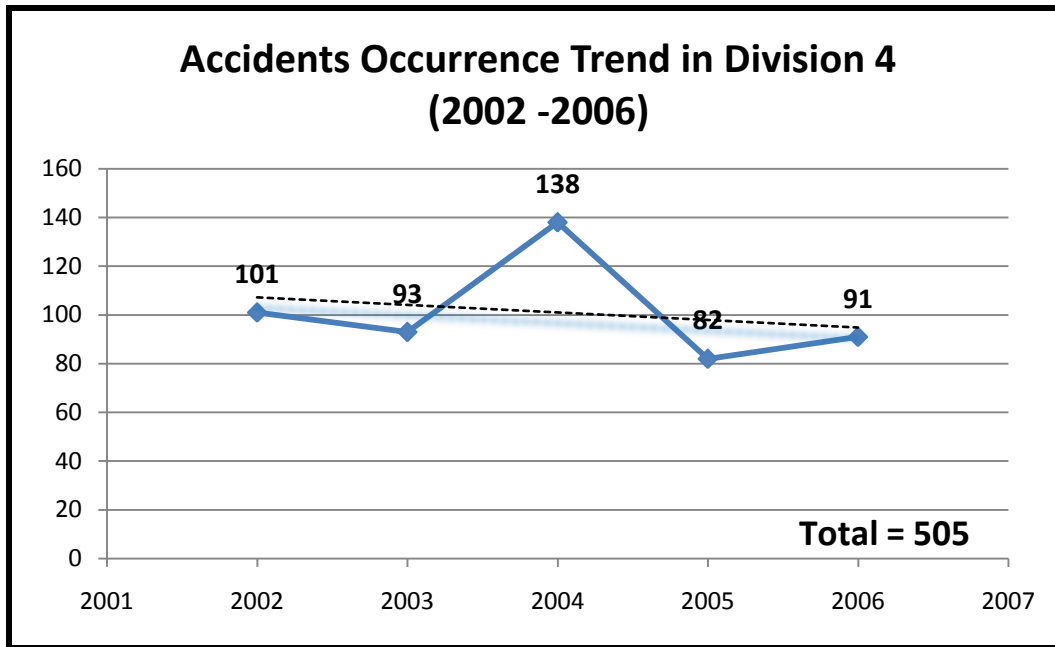
DIVISION 4

1. Number of Accidents

The graph below shows the number of accidents from the RISKMASTER database that occurred in Division 4 split up into different districts and units. The greatest number of accidents happened in District 1 with 194 of the total 505 accidents. The graph displays the data in a descending order.



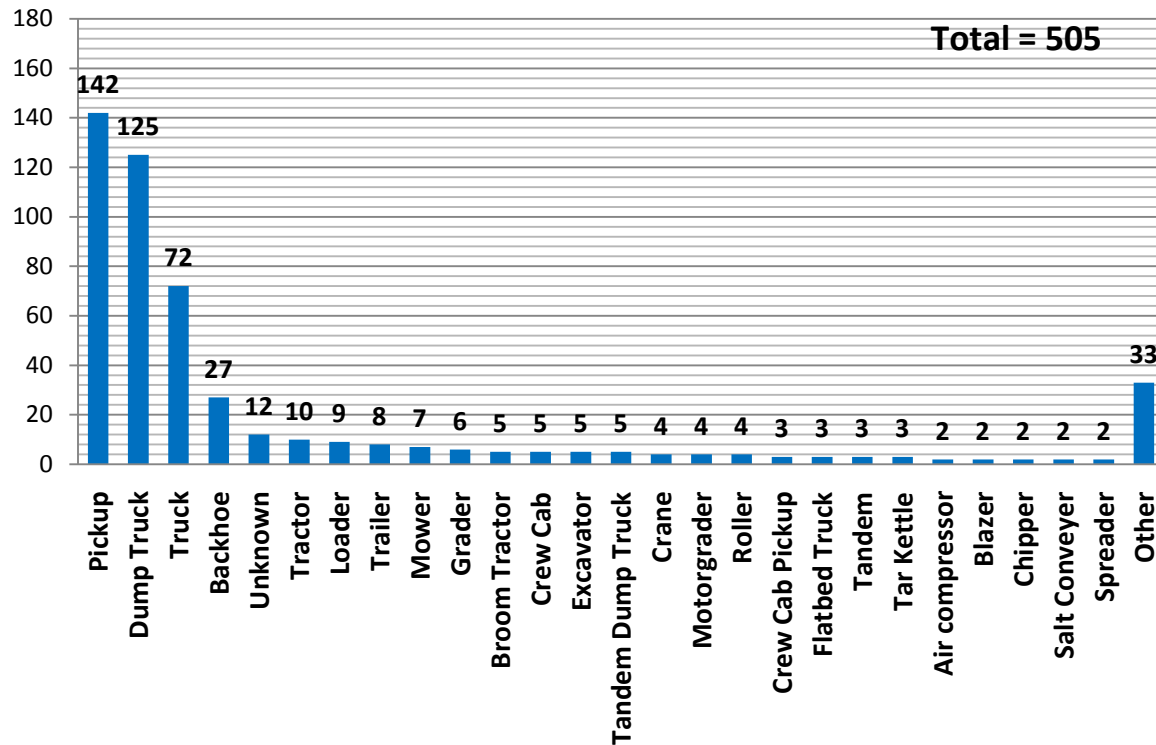
The accidents occurrence trend chart shows the number of accidents split into the years 2002-2006. The graph has a spike in the year 2004 with 138 accidents. The line of best-fit shows that the accidents are decreasing as the years continue.



2. Accidents by Equipment Type

The RISKMASTER database displays the accidents in Division 4 by the type of equipment involved. “Pickup” and “Dump truck” were once again involved in the greatest number of accidents with 142 and 125 respectively. This is likely to be due to the amount of activity/quantity of these vehicles compared to the rest of the equipment. The types of equipment in the “Other” category are listed below the graph.

Accidents by Equipment Type in Division 4 (2002 - 2006)

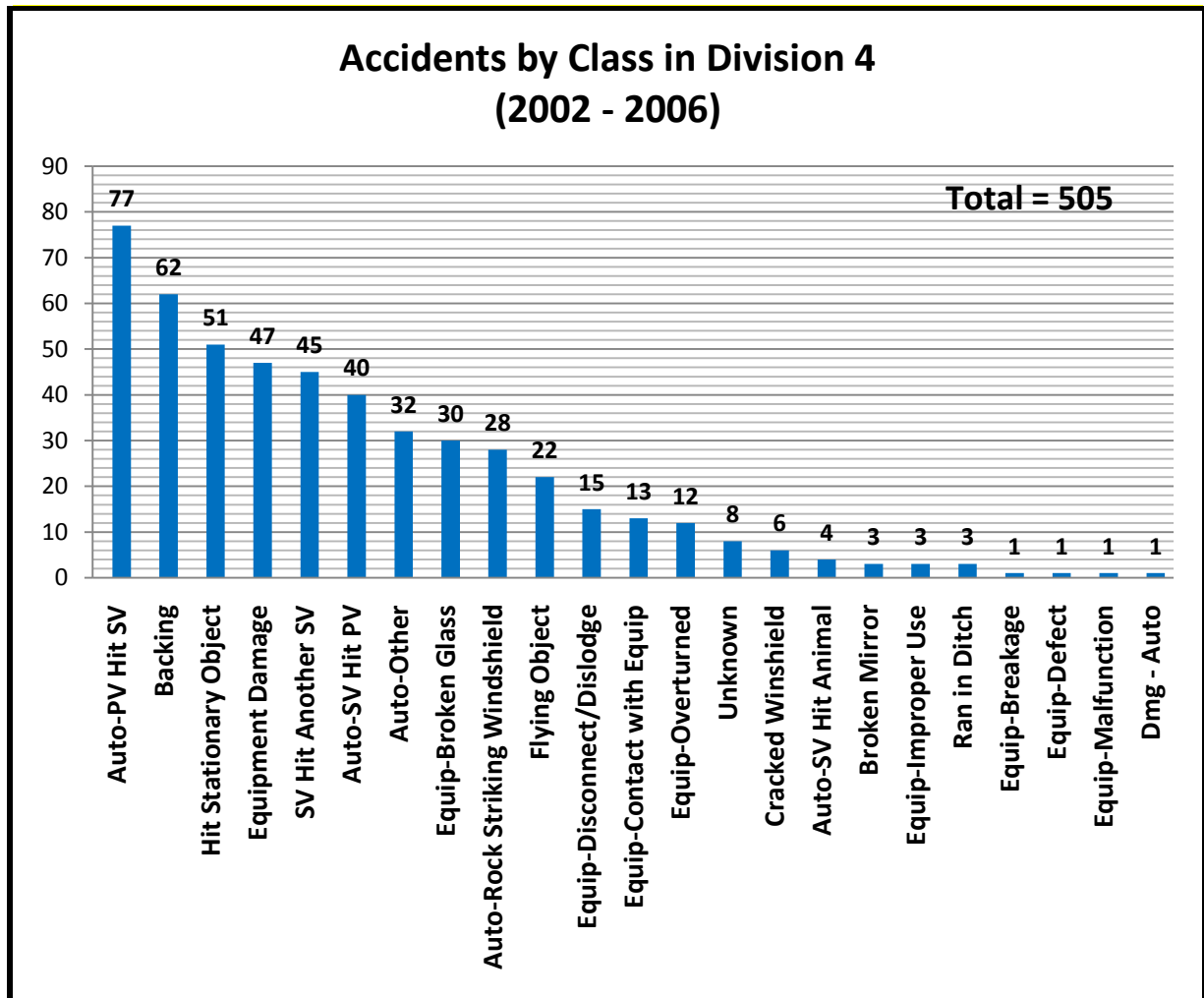


The equipments that make up the “Other” category are listed in the table below.

322 Cat Excavator	Cushion	Sprayer
Arrowboard/trailer	Drott	Surburban
Asphalt Kettle	Forklift	Tanker
Axe	Front End Loader	Tire Roller
Badger	Gang Truck	Trac-Hoe
Bagger	Grader Mower	Tractor Mower
Boom Truck	Kodiak	Trailease
Brush Chipper	Plow	Utility Truck
Bucket Truck	Pole Trailer	Van
Car	Salt Spreader	Widener
Carryall	Snow Plow	Wrecker

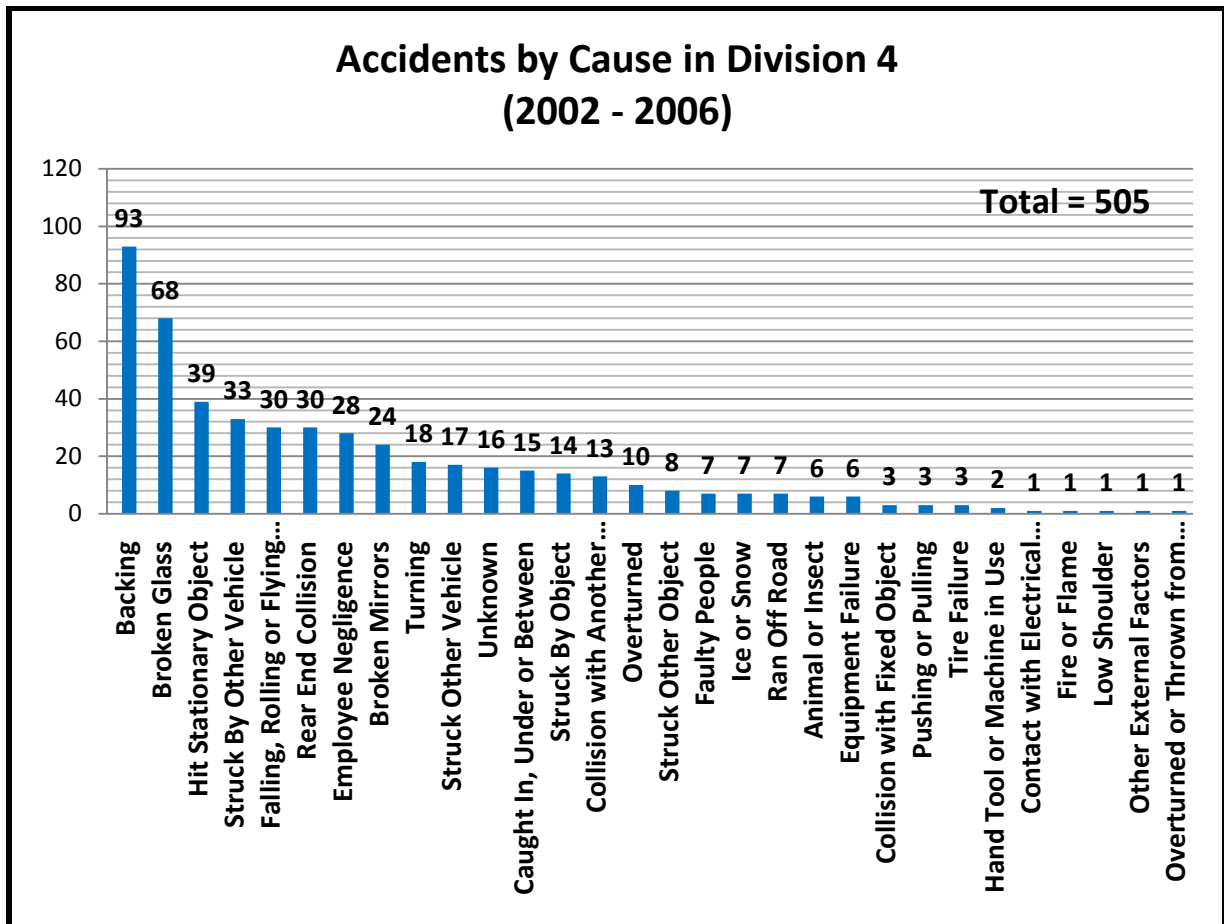
3. Accident by Class

The accidents are further broken down into various classes. The top classes of accidents were “PV hitting SV,” “Backing,” “A vehicle hitting a stationary object.” Some other leading causes of accidents included “SV hitting PV” and “Chipped or broken glass.” The graph shows that the least number of accidents were due to equipment defects and equipment malfunction with 1 accident each. The graph displays the largest amount accidents in a declining order.



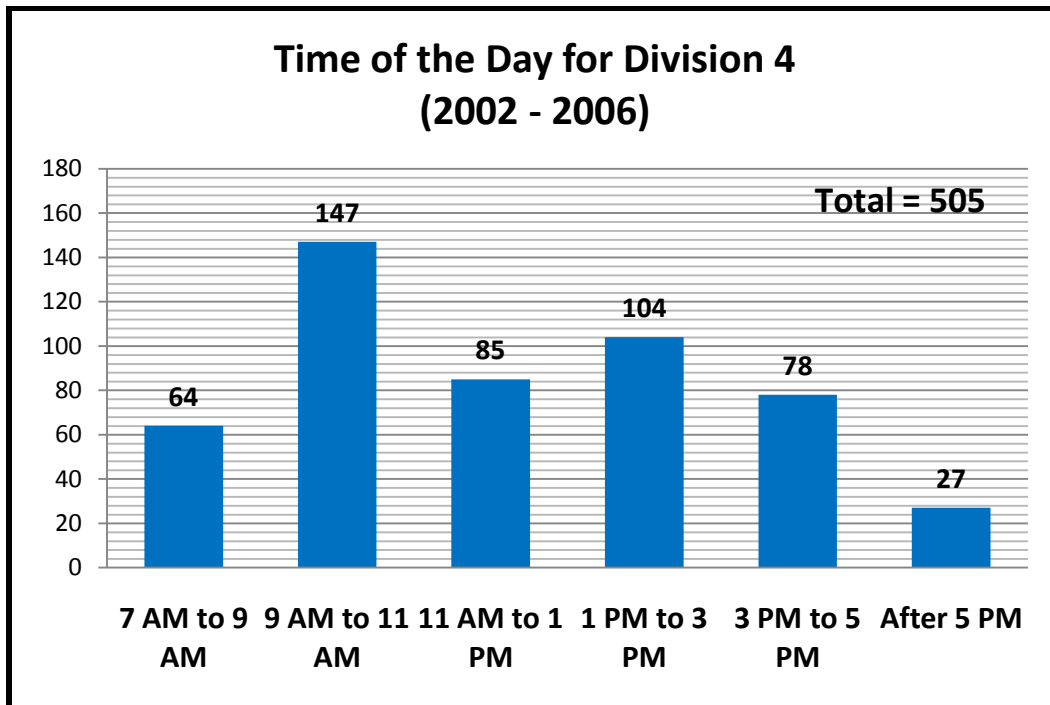
4. Accidents by Cause

The leading cause of accidents in Division 4 was from “Backing,” “Broken glass,” and “Hitting a stationary object,” while the least accidents were a result from tire failure, fire damage, or other external factors. This may indicate that high numbers of accidents are due to preventable causes that may have resulted from the carelessness of the operator. The graph shows causes of accidents in a descending order.



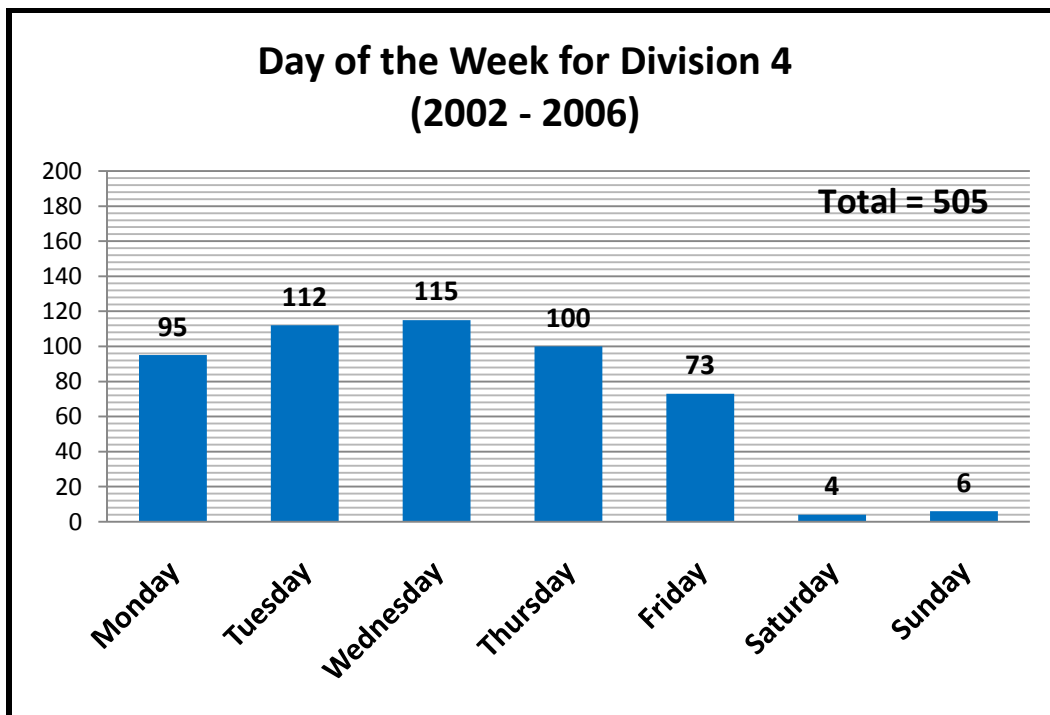
5. Time of the Day

The RISKMASTER data shown in the graph below is displayed as various times of the day. The greatest value of accidents occurred between 9 AM to 11 AM and 1 PM to 3 PM. These tend to be high traffic times of the day, which could be the reason for the increased number of accidents. The rest of the times show a fairly even distribution of accidents.



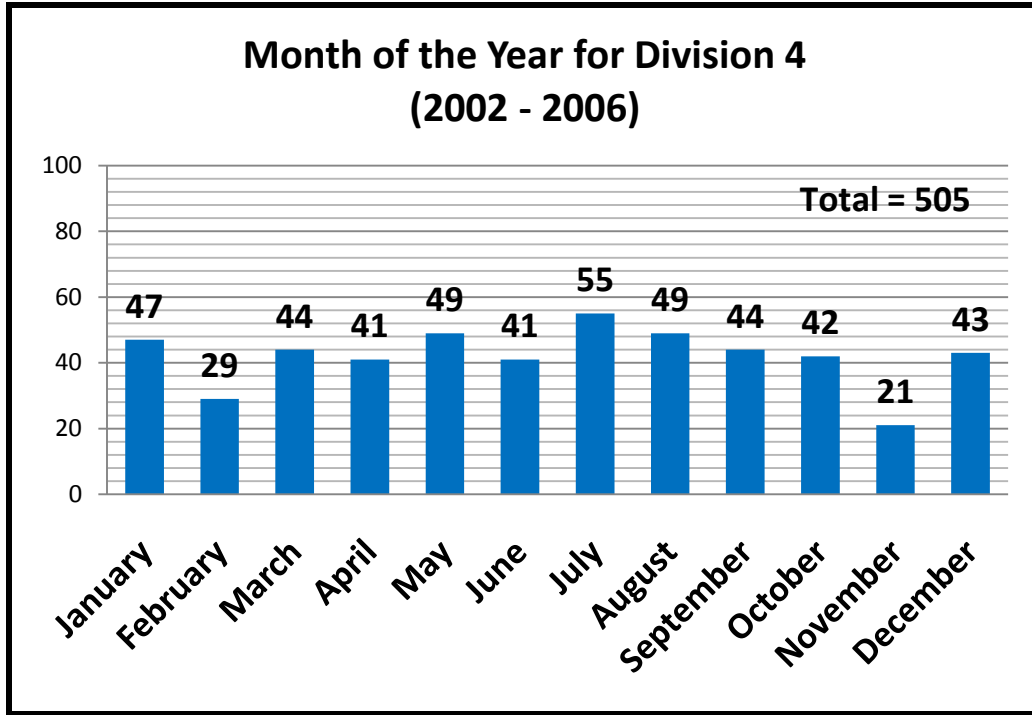
6. Day of the Week

The graph below shows the accidents split into the days of the week. In Division 4, the data indicates that accidents occurred almost evenly throughout the week. The weekend has a significantly lesser number of accidents, which is quite expected.



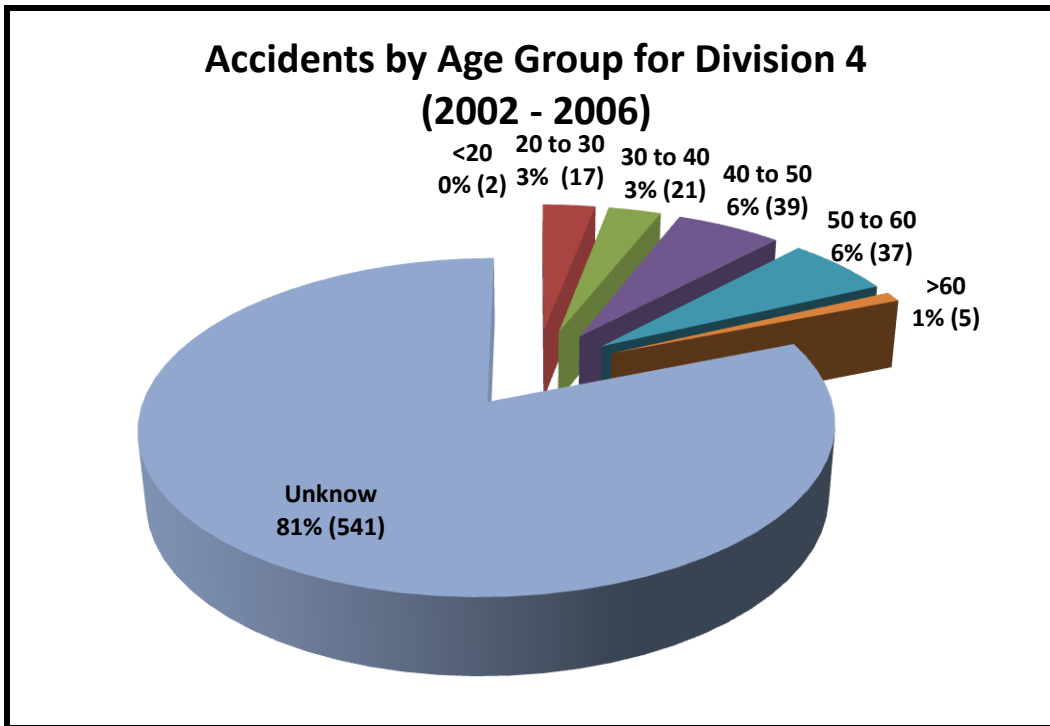
7. Month of the Year

The data is shown by each month of the year. The trend of the graph shows fairly even distribution over the years. There is a slight spike during the spring and summer months, which may be due the increased number of cars on the road as a result of the warmer weather.



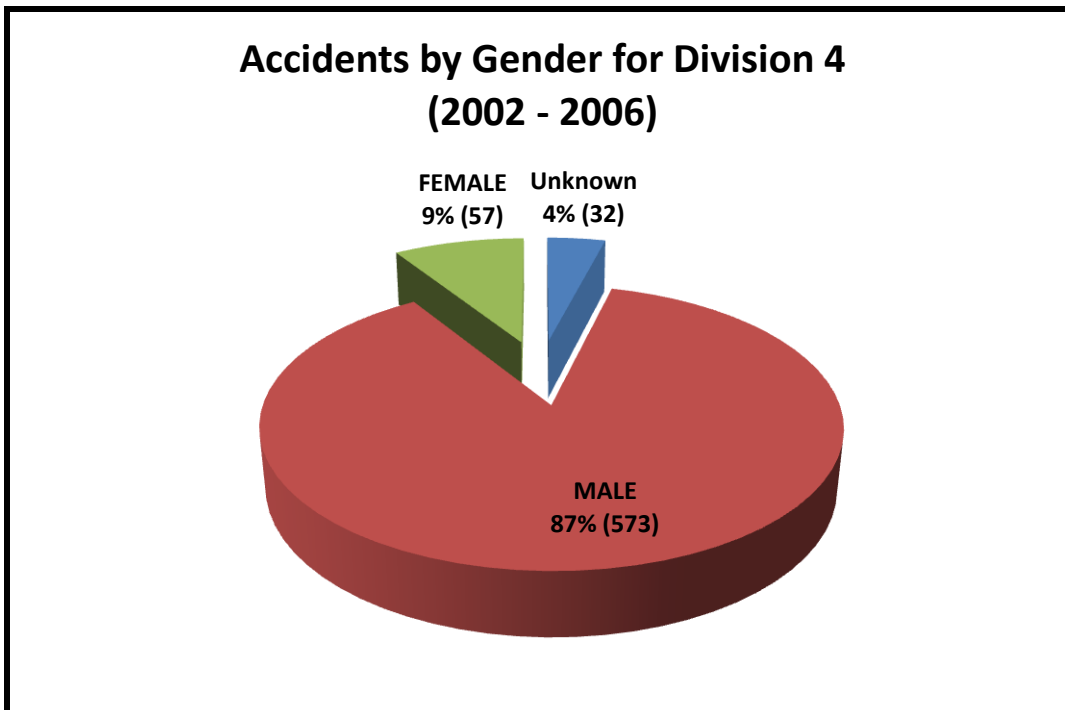
8. Age Group

The chart below divides the accidents into age groups. The greatest percentage of accidents is in the "Unknown" category with 81%. The next largest percentage is between 40-50 years old and 50-60 years old with 6% each.



9. Gender

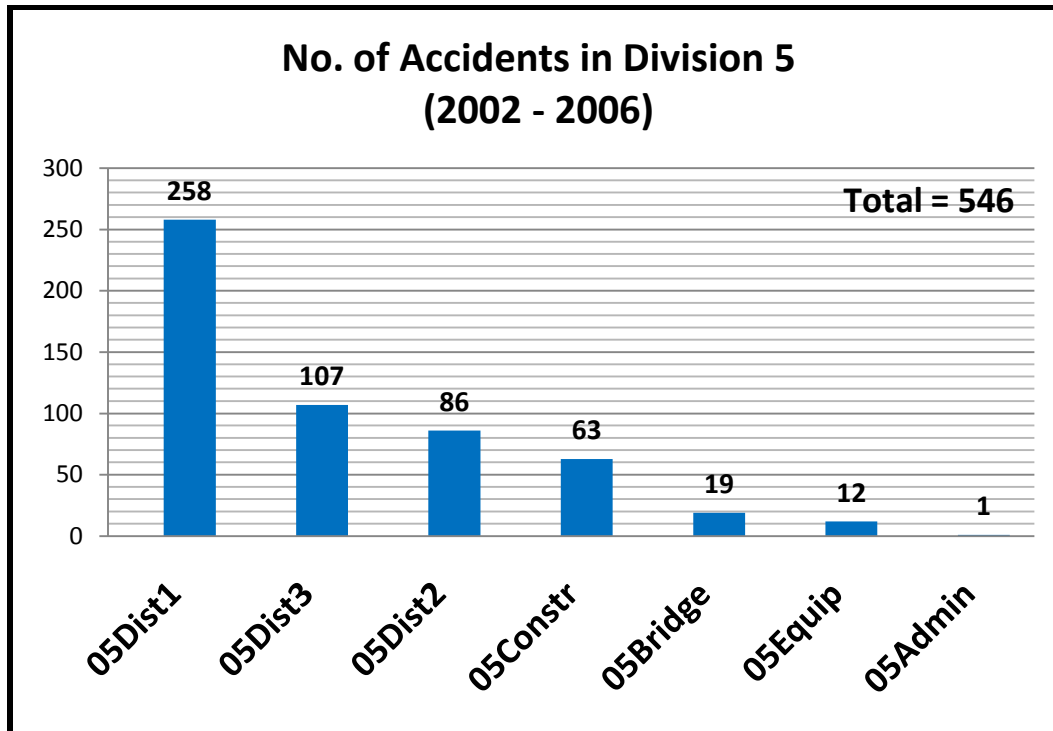
According to the chart below, the greatest percentage of accidents involved male employees with 87%. Females were involved approximately 9% of the accidents in Division 4. This could be due to a greater male population in the Division 4 workforce.



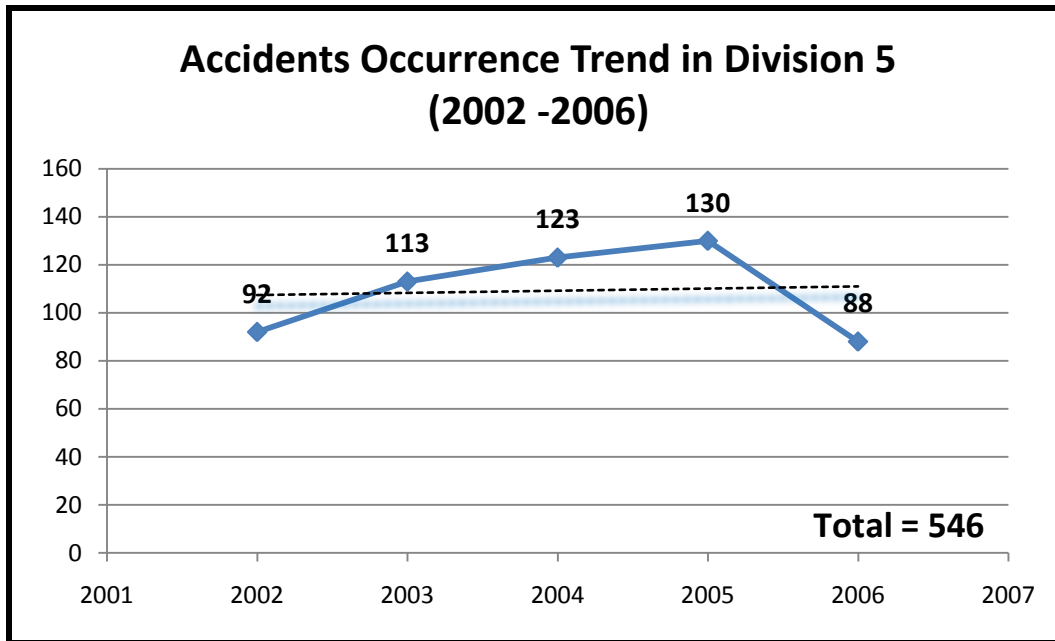
DIVISION 5

1. Number of Accidents

The numbers of accidents in Division 5 from 2002 to 2006 are shown in the graph below. According to the RISKMASTER database, the greatest number of accidents occurred in District 1 with 258 accidents. The graph shows a declining order throughout the districts and units.

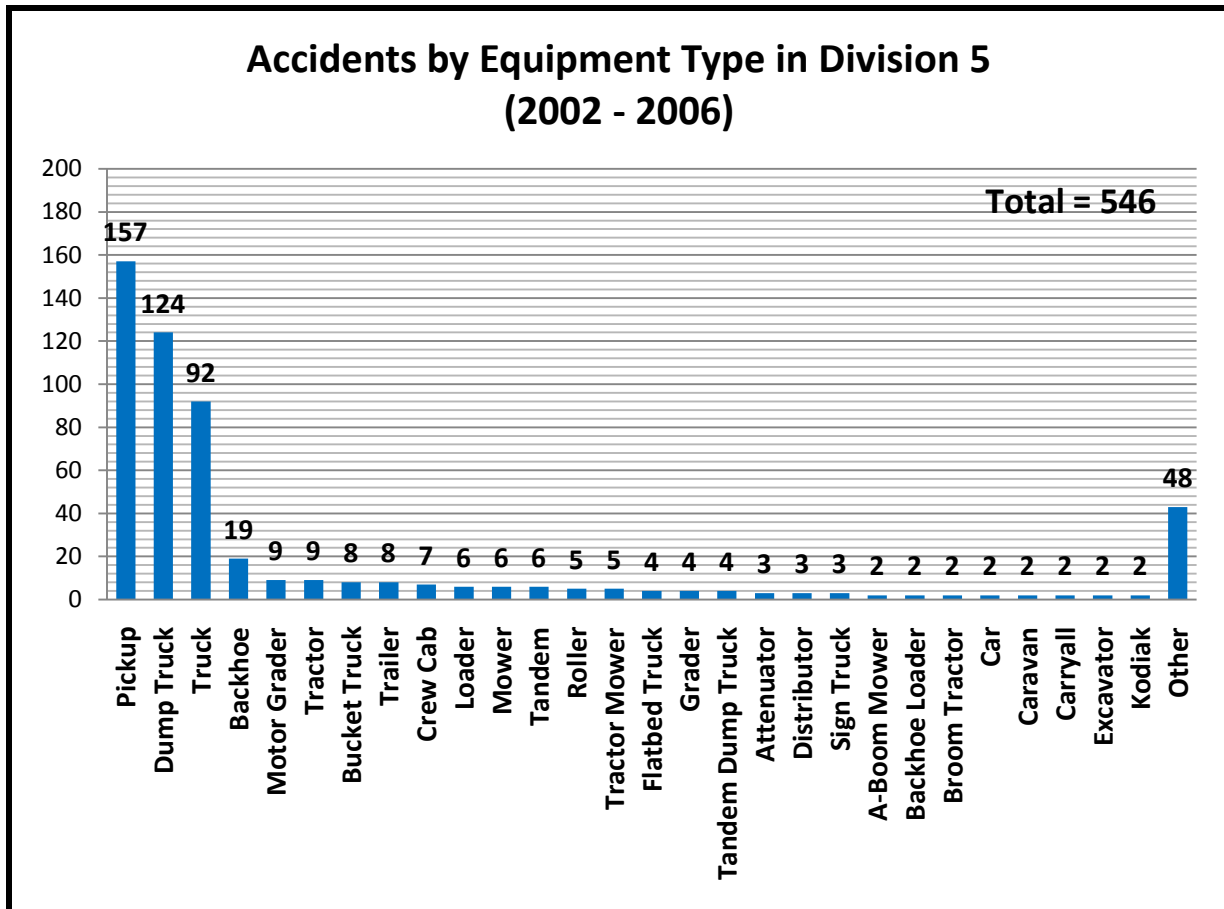


The graph below shows the trend line throughout the years for the number of accidents related to the year. The graph was showing an increase between the years 2002-2005, but the number dropped significantly in 2006. The number went from 130 accidents in 2005 to 88 accidents in 2006. This stiff decline of accidents contributed the overall trend line to be rather flat over the study period.



2. Accidents by Equipment Type

The RISKMASTER database shows the accidents by the type of equipment in the graph below. In Division 5, the largest number of accidents was caused by “Pickup,” “Dump trucks,” and other types of trucks. The “Other” category is listed in the table below the graph. The graph shows the number of accidents by equipment type in a descending order.

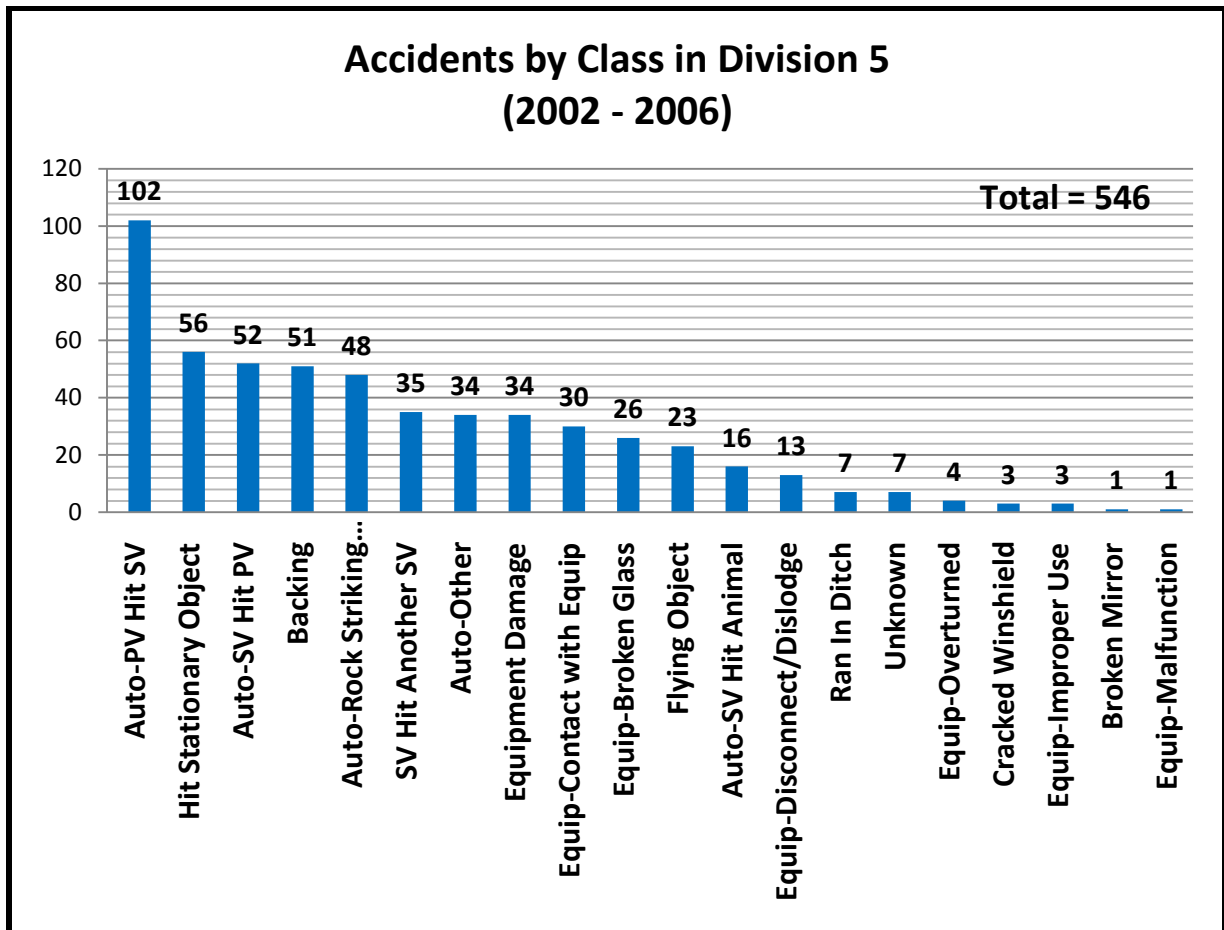


The equipments that make up the “Other” category are listed in the table below.

Paint Truck	Dozer	PL-3279
Spreader	Durango	Pole truck
Suburban	Explorer	Pro Patch
SWB	Flatbed Crew Cab	Rental Backhoe
Van	Fork Lift	Straw Blower
Auger	Front end loader	Tar Truck
Boom Mower	Fuel Truck	Tire Roller
Cat D6 Dozer	Lowboy	Trailblazer
Cat Scraper	Message Board	Tripod
Chip Spreader	Mulch Blower	Utility Truck
Crane	n/a	Weedeater
Crew Cab Pickup	Patch Roller	Wheel Loader

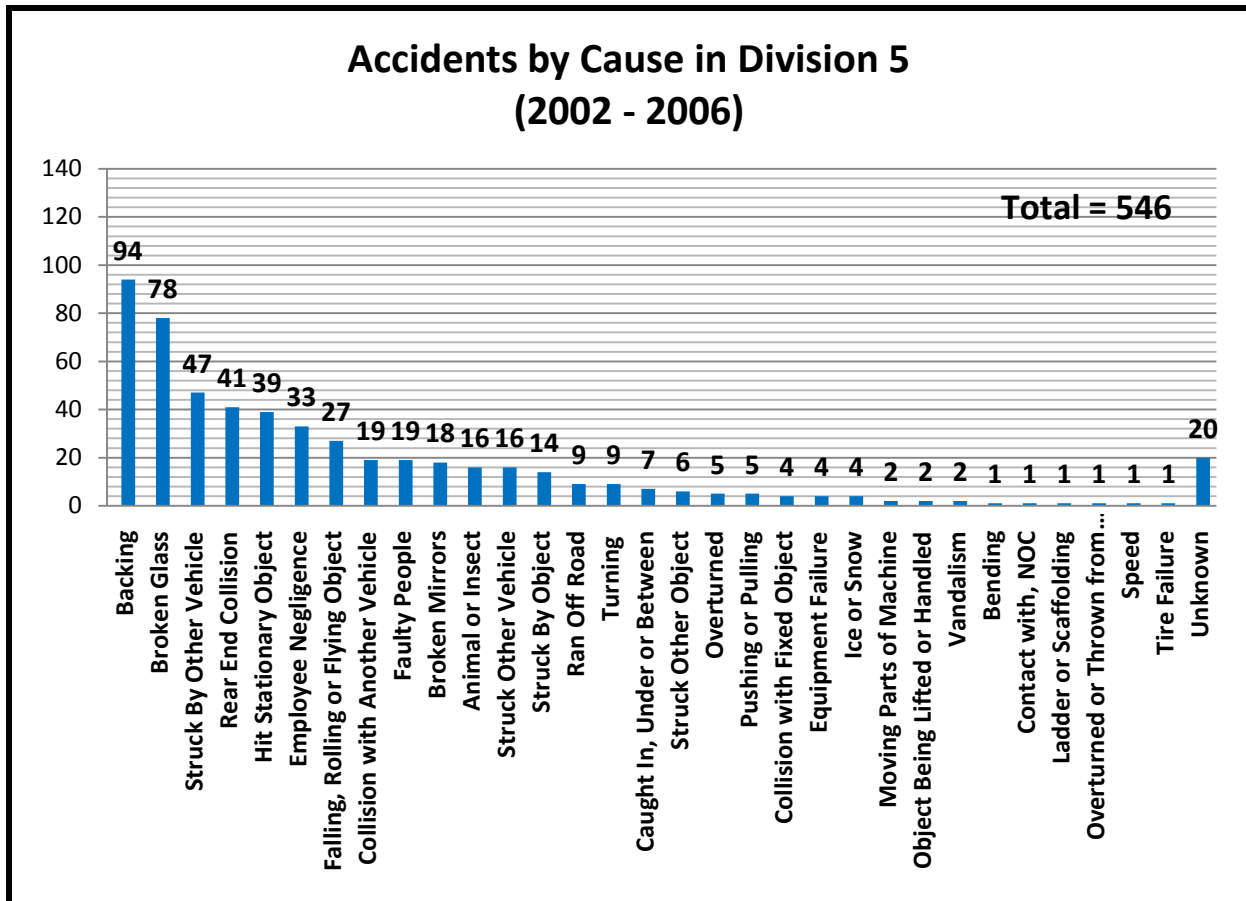
3. Accident by Class

In Division 5, the class of accidents that had the greatest value was “PV hitting SV” with 102 accidents. This number was nearly double than any other classes. Some of the other leading classes were “Hitting a stationary object,” “SV hitting PV,” and “Backing.” These appear to be frequent causes among all the divisions.



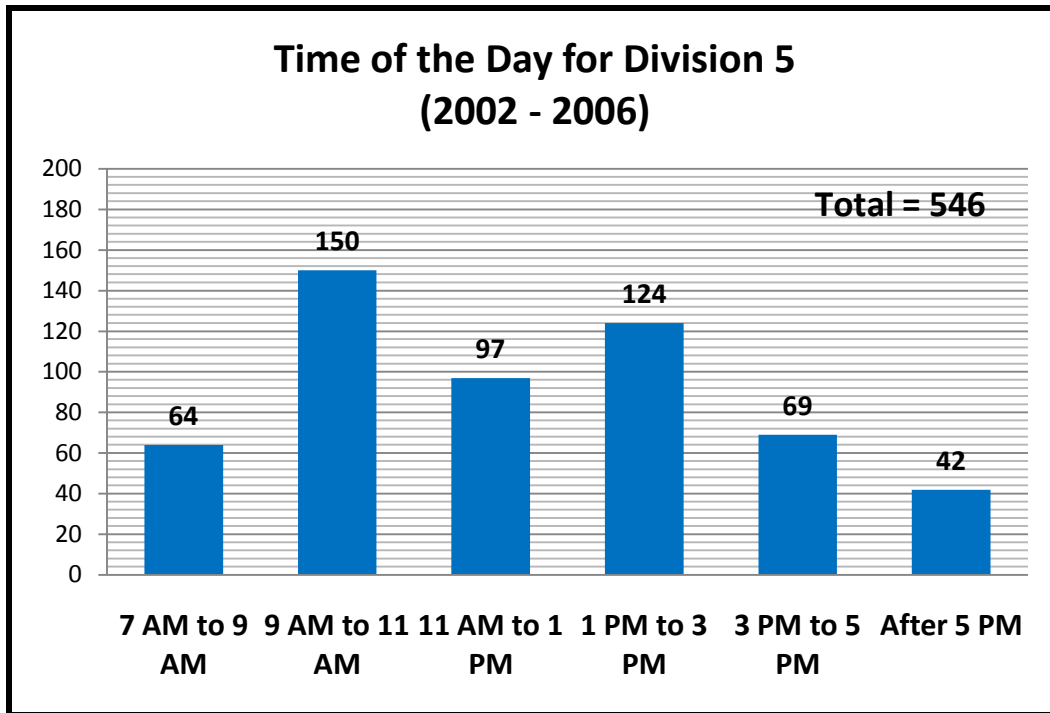
4. Accidents by Cause

According to the RISKMASTER database, the leading cause of accidents in Division 5 was due to “Backing” with 94 accidents. Backing was closely followed by “Broken glass” with 78 accidents. The graph displays that some of the least causing items were “Speed” and “Tire failure” with 1 accident each. The graph shows the data in a descending order.



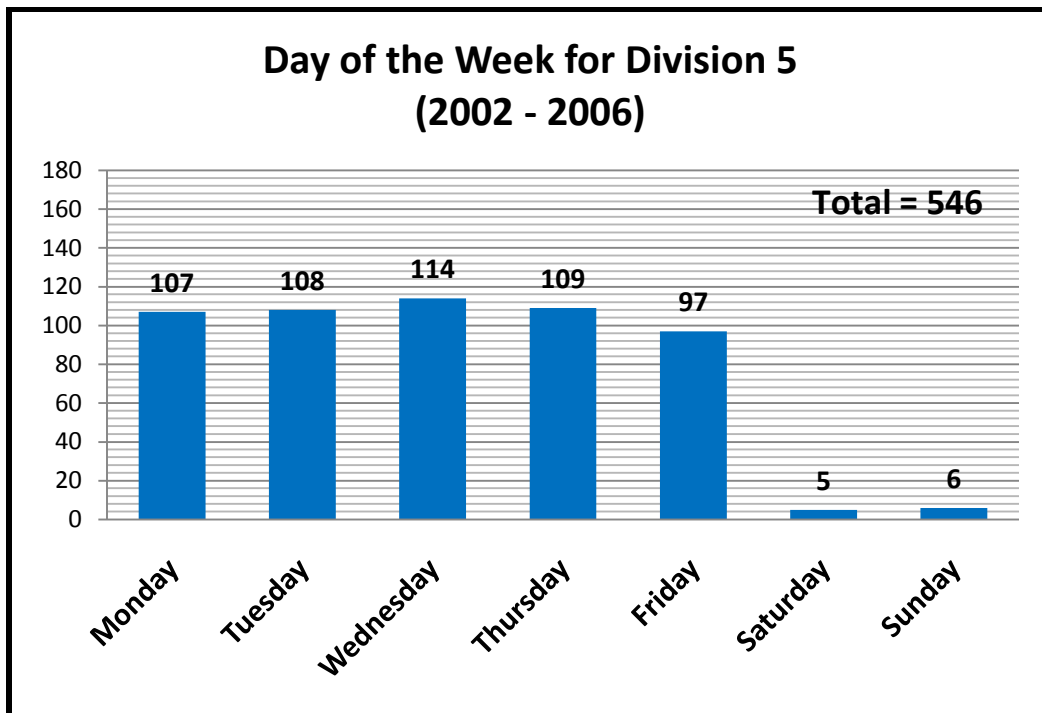
5. Time of the Day

The chart below shows the RISKMASTER data divided into six different time spans. The two with the largest number of accidents were 9 AM to 11 AM and 1 PM to 3 PM with 150 and 124 respectively. These time zones are usually when the traffic volumes are high, which could explain the high rate of accidents occurrence.



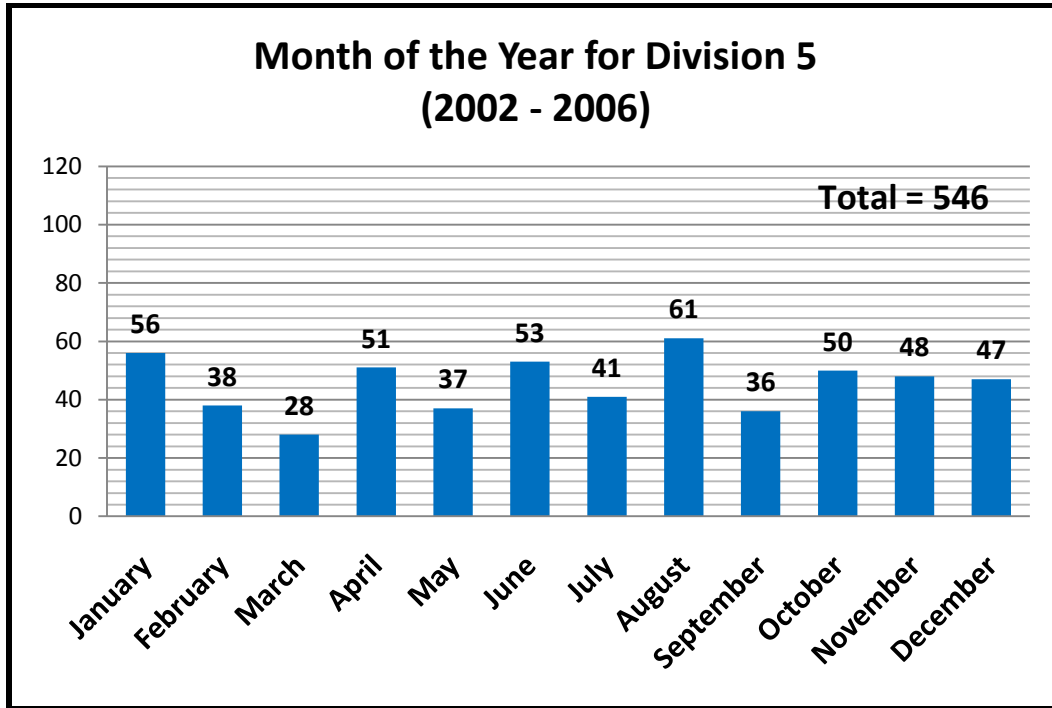
6. Day of the Week

The data is further broken down in the next graph. It shows that there is an even distribution of accident occurrence from Monday through Friday. The number of accidents over the weekend is minimal. The trend line of the week remains rather unchanged.



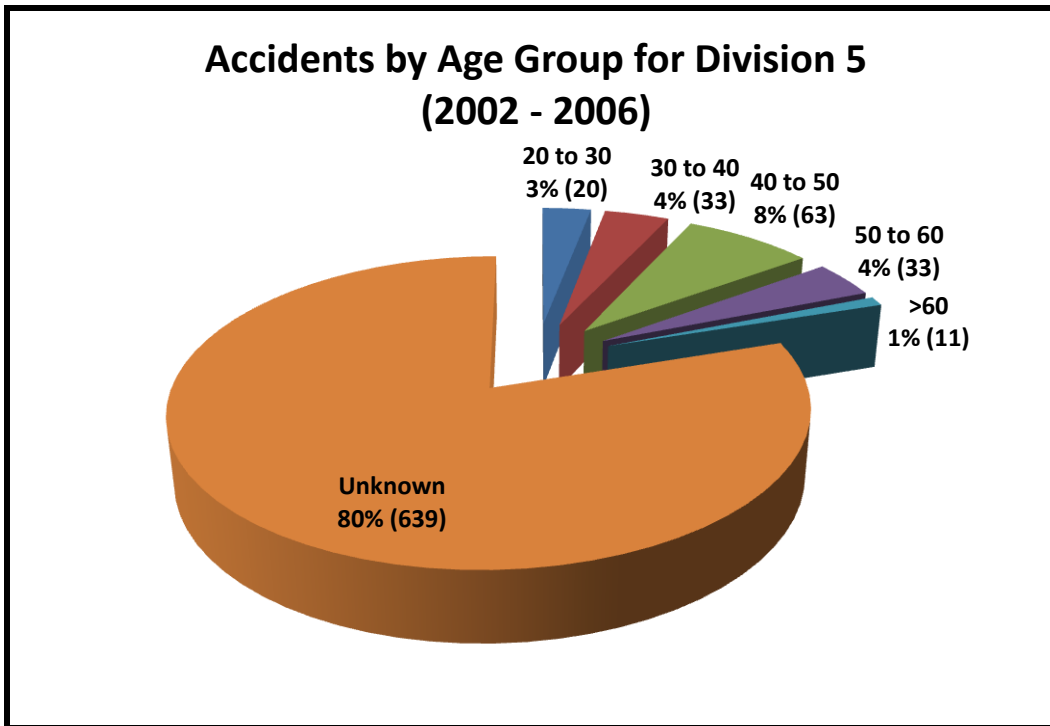
7. Month of the Year

The largest number of accidents occurred during August with 61 total accidents. The least number of accidents occurred during the month of March with 28 accidents. The trend line of the graph shows a pretty scattered variance. There doesn't seem to be much correlation between the month and accident occurrence.



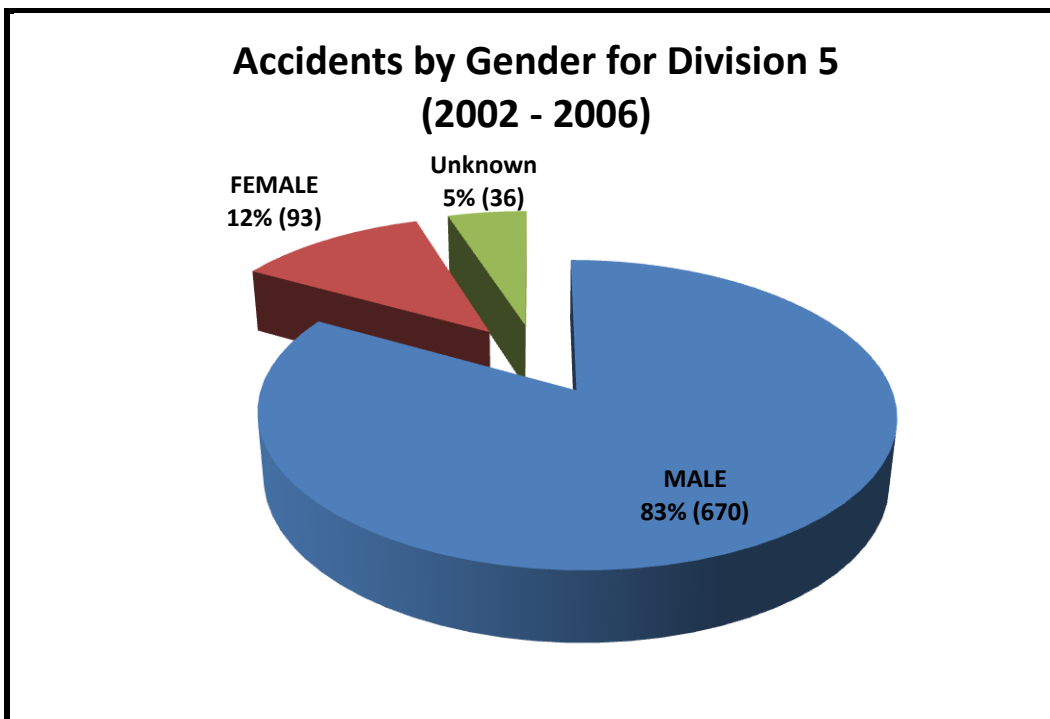
8. Age Group

The accidents are displayed in the 6 different age groups. The largest percentage in the chart was claimed by the "Unknown" category with 80%. Again, the second largest was between the ages of 40 to 50 years old.



9. Gender

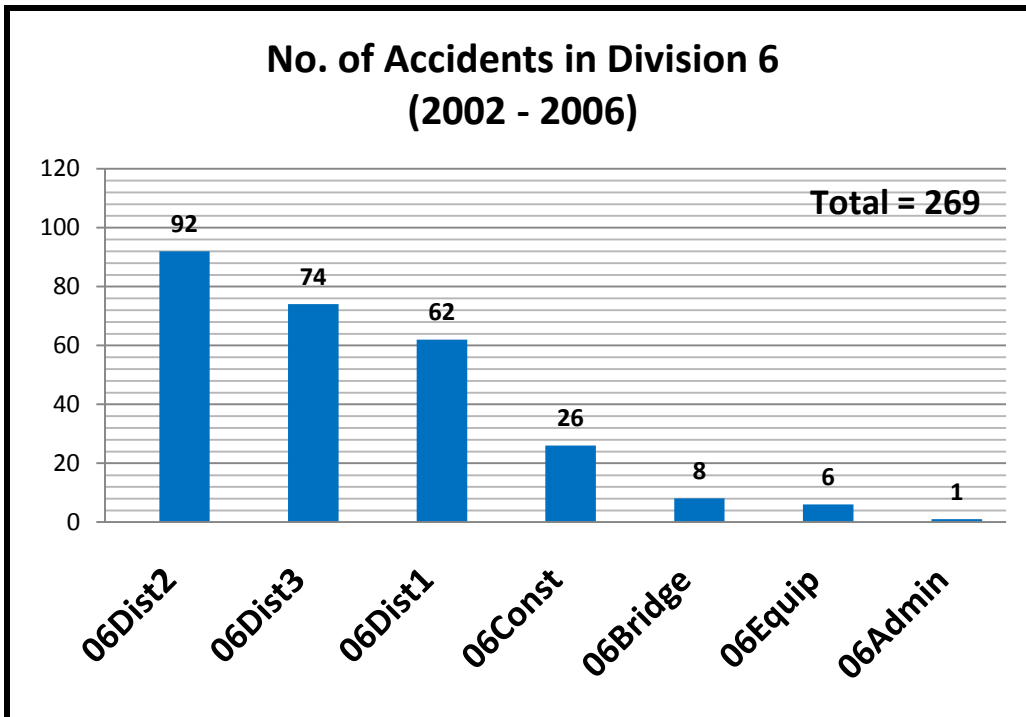
In Division 5, the RISKMASTER data shows that men were involved in 83% of the accidents, while women were involved in 12%. This could be due to a greater male population in the Division 5 workforce.



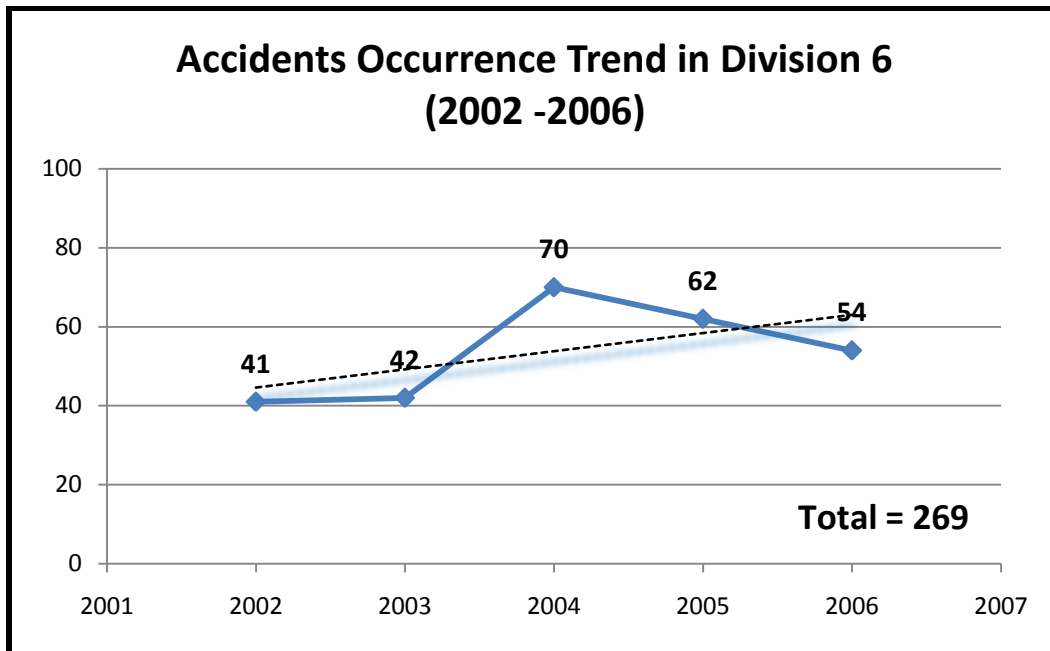
DIVISION 6

Number of Accidents

The RISKMASTER database shows the number of accidents in Division 6 broken down into the various districts and branches of the NCDOT. The graph is in a descending progression. The largest number of accidents occurred in District 2 with 92 accidents.

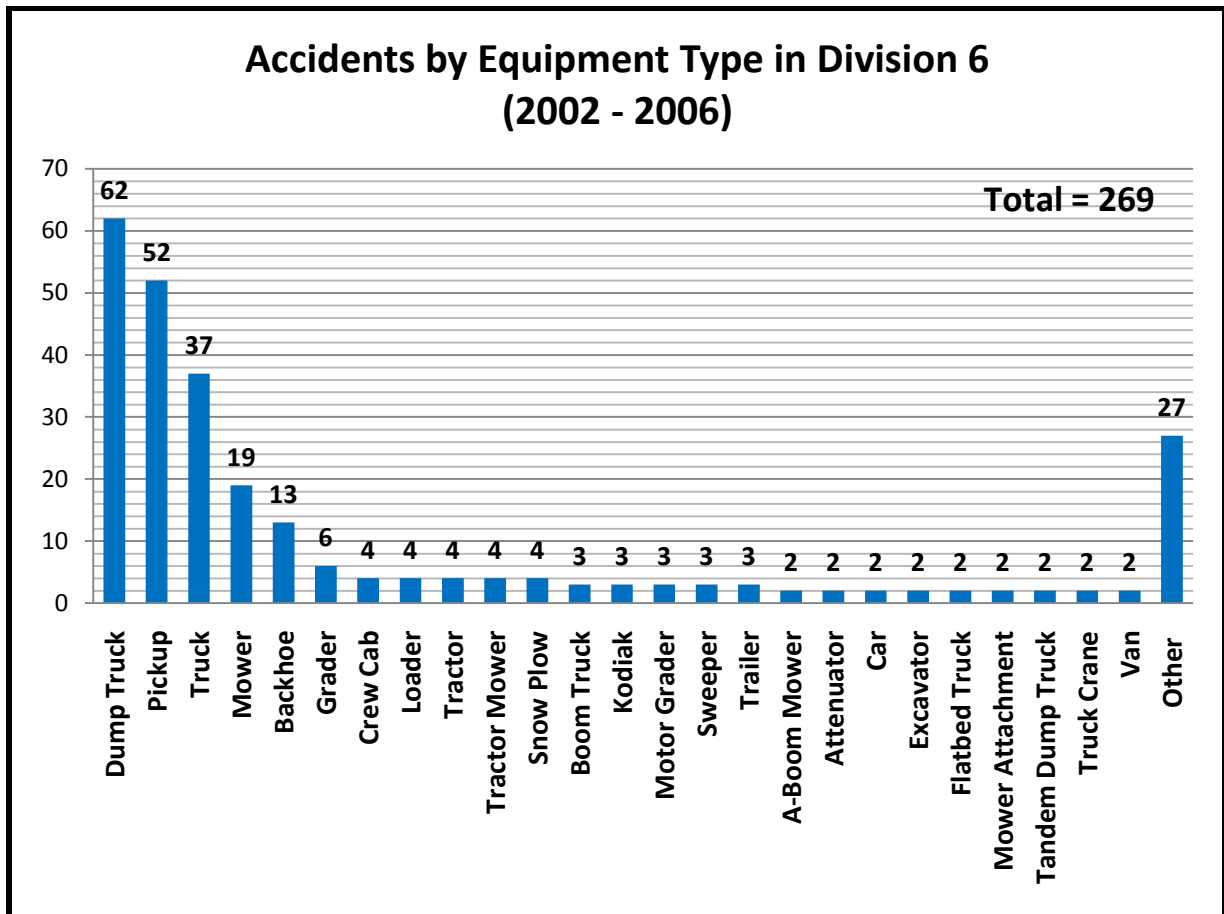


The graph below shows the trend of accidents occurrence in Division 6. There was a spike of increased accidents in 2004 to 70 accidents from 42 accidents in 2003. Since this increase, the values have remained fairly constant, and the graph below shows ascending trend line during the study period.



2. Accidents by Equipment Type

In Division 6, a total of 269 accidents by different equipment types occurred during the period of 2002 to 2006, with “Dump truck” bearing the most accidents. “Pickups” and other truck types also had a large value as they play a large part in roadside activity. In the manner of performance, they had the most number of accidents by equipment class. The graph shows the values in a declining fashion. Some of the “Other” equipment types are listed in the table below.

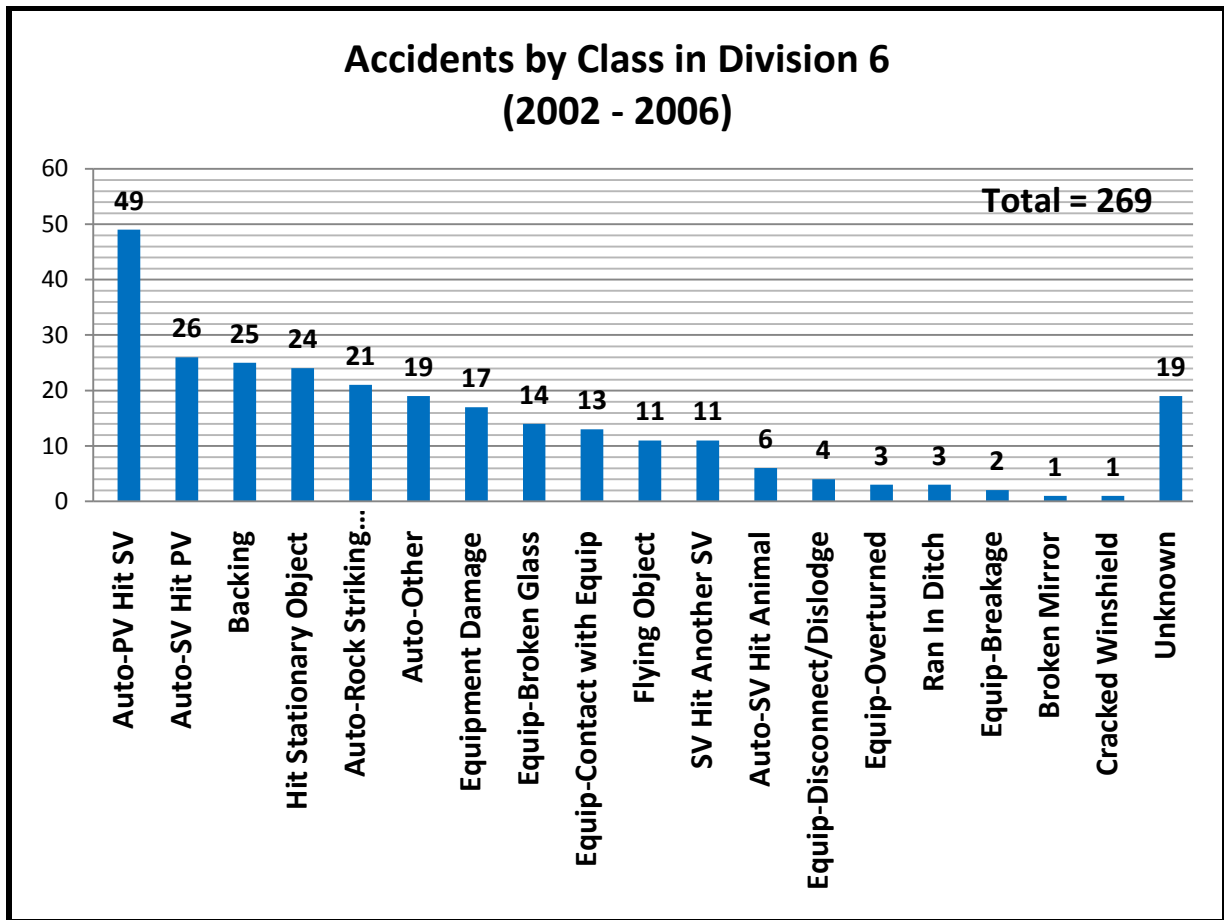


Twenty seven equipments classified as “Other” are listed below.

5,000 GVW FS 8' Body Pickup	Ferry	Radio
Asphalt Distributor	Fork Lift	Roller
Blazer	Kettle	Rubber Tire Roller
Broom	Liberty	Suburban
Changable Message Board	Machine	Tandem
Clubwagon	Mulch Spreader	Tree Trimmers
Crane	N/A	Wagon
Crew Cab Pickup	Paint Truck	Weed eater
Distributor	Patcher	Zipper

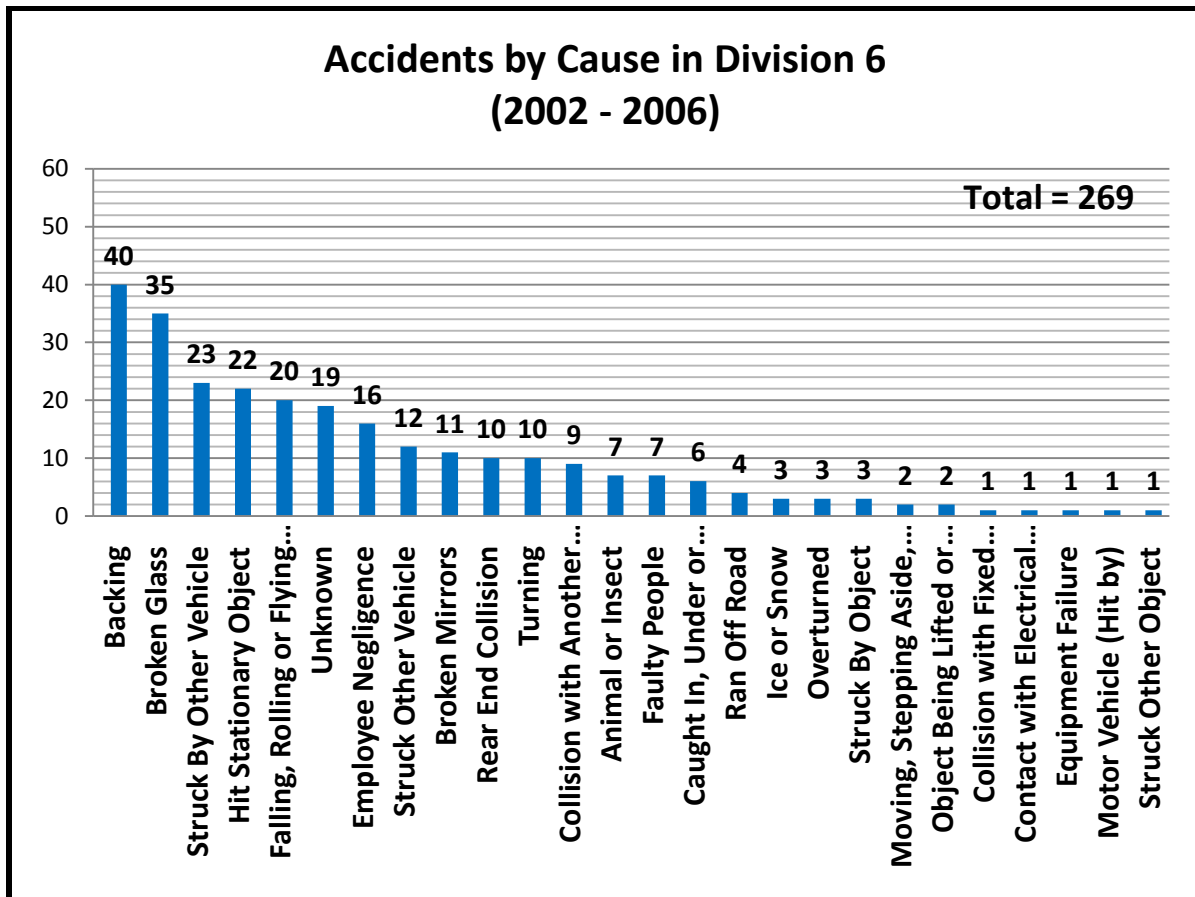
3. Accident by Class

The accidents are further broken down into various classes. The top classes of accidents were “PV (SV) hitting SV (PV),” “Backing,” and “A vehicle hitting a stationary object.” These three classes made up for nearly 46% of the total accidents. Some other leading causes of accidents included “Chipped or broken glass.” The graph shows that the least numbers of accidents were due to “Broken mirror” and “Cracked windshield” with 1 accident each. The graph displays the largest amount accidents in a declining order. Note that there are 19 accidents with unknown accident class.



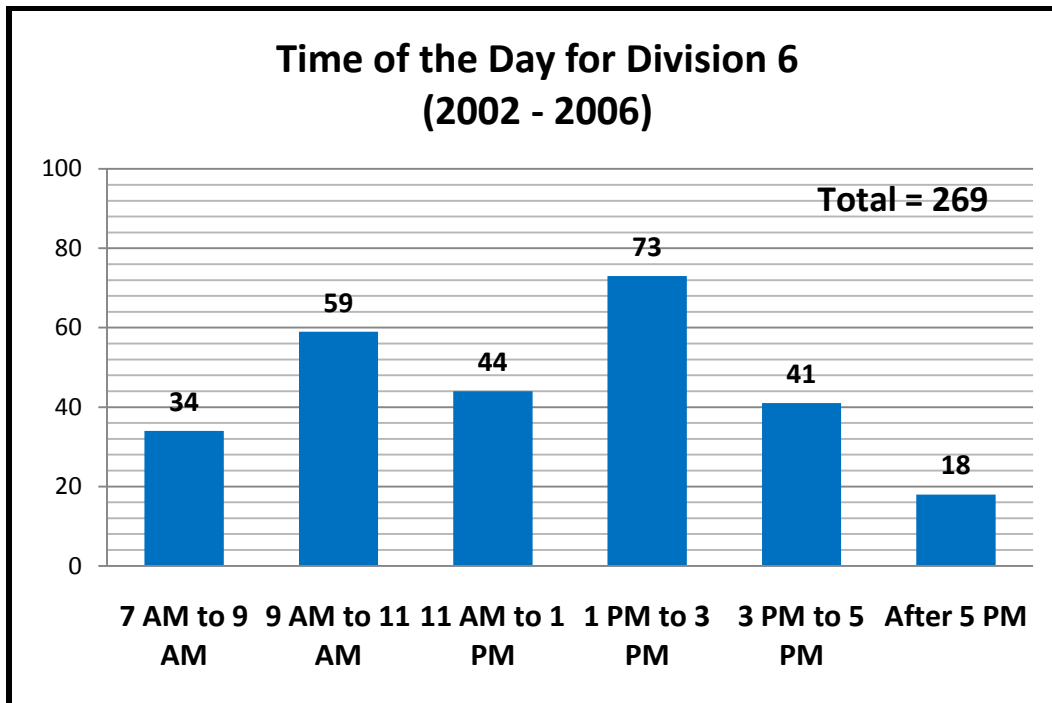
4. Accidents by Cause

The graph below relates the accidents with their cause in Division 6. Throughout the study period of 2002 to 2006, the leading causes of accidents were due to “Backing” with 40 records and “Broken Glass” 35 records. The fewest accidents occurred due to “Contact with Electrical Current,” “Ice or Snow,” “Equipment failure,” and “Struck other object,” each with 1 record. The data is displayed in a descending order.



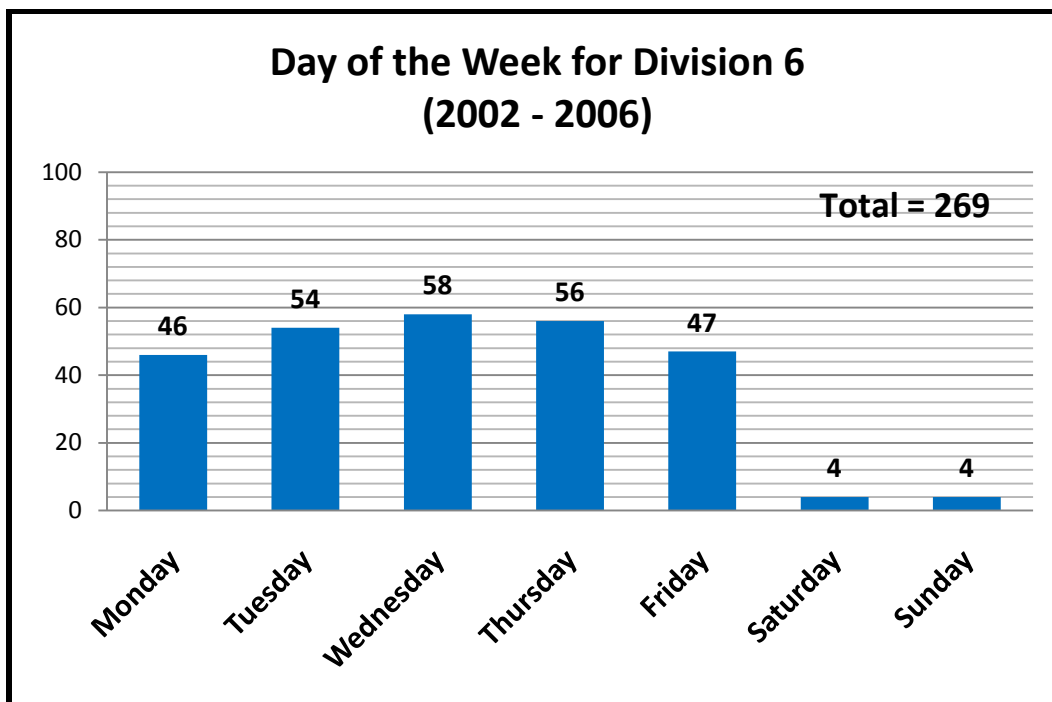
5. Time of the Day

The chart below shows the RISKMASTER data divided into six different time spans. The two with the largest number of accidents were 9 AM to 11 AM and 1 PM to 3 PM with 59 and 73 respectively.



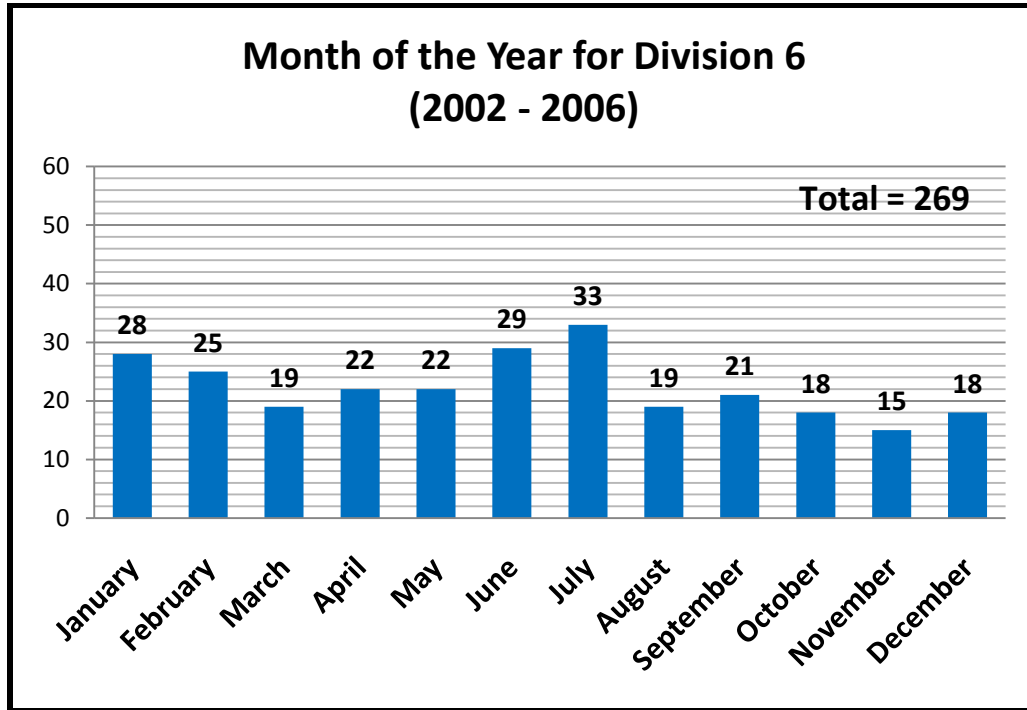
6. Day of the Week

The graph below displays the number of accident occurrence by the day of the week for Division 6. It indicates relatively similar number of accidents occurred from Monday to Friday with the highest occurrence rate observed on Wednesday with 58 accidents. However, the number of accidents drastically drops over the weekends.



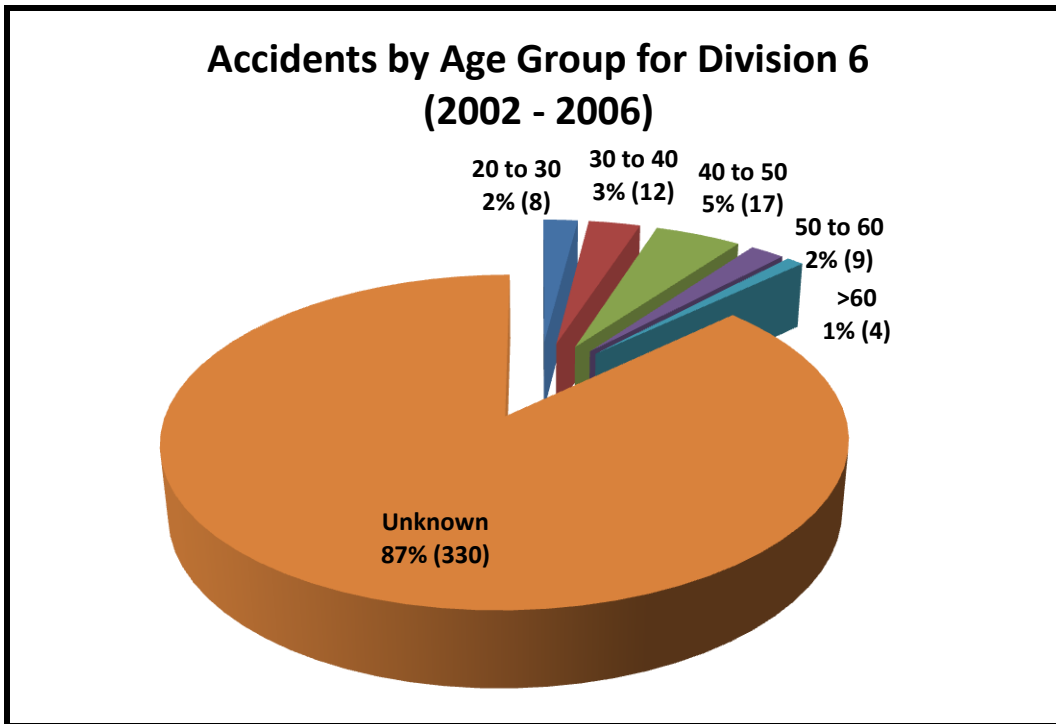
7. Month of the Year

The largest number of accidents occurred during July with 33 total accidents. The least amount of accidents was during the month of November with only 15 accidents. The trend line of the graph shows a pretty constant variance. Again, there doesn't seem to be much correlation between the accident occurrence and the month of the year.



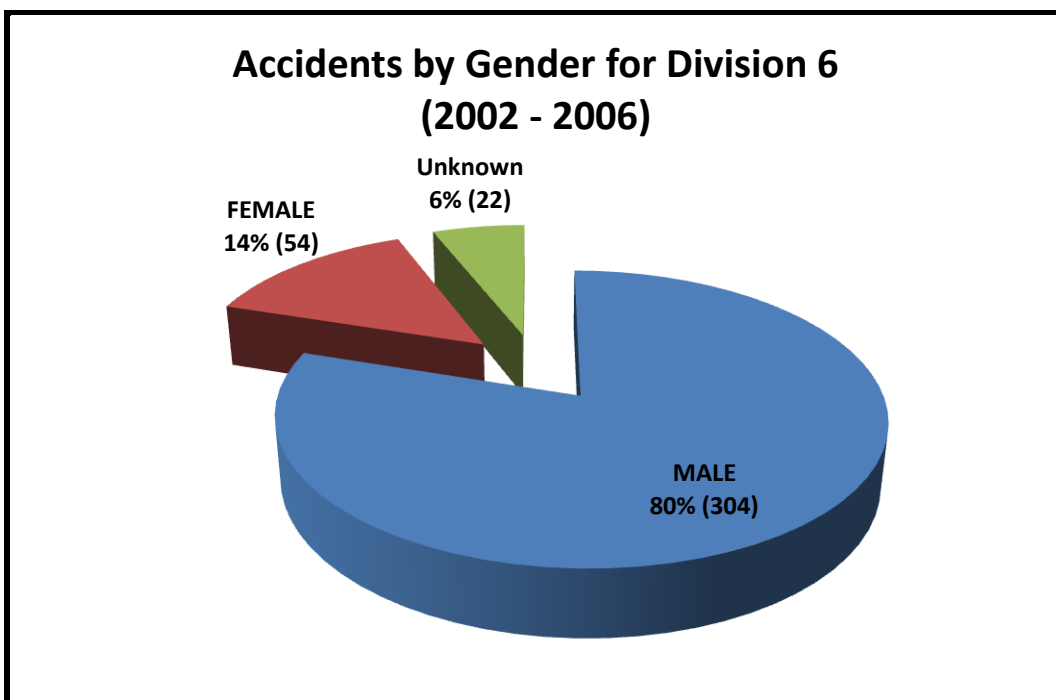
8. Age Group

Throughout the years of 2002 to 2006, the number of accidents in Division 6 has been broken down into various age groups. The age ranges of Division 6 were: less than 20 years old, 20-30 years old, 30-40 years old, 40-50 years old, 50-60 years old, greater than 60 years old, and an unknown age group. The less than 20 age class had the least amount of accidents with 0%, followed by greater than 60 years old with 1%. The greatest number of accidents occurred in the unknown age category with a percentage of 87%, followed by 5% in the 40-50 year old class. Again, there seems a problem with inaccurate data entry at the time of accident reporting.



9. Gender

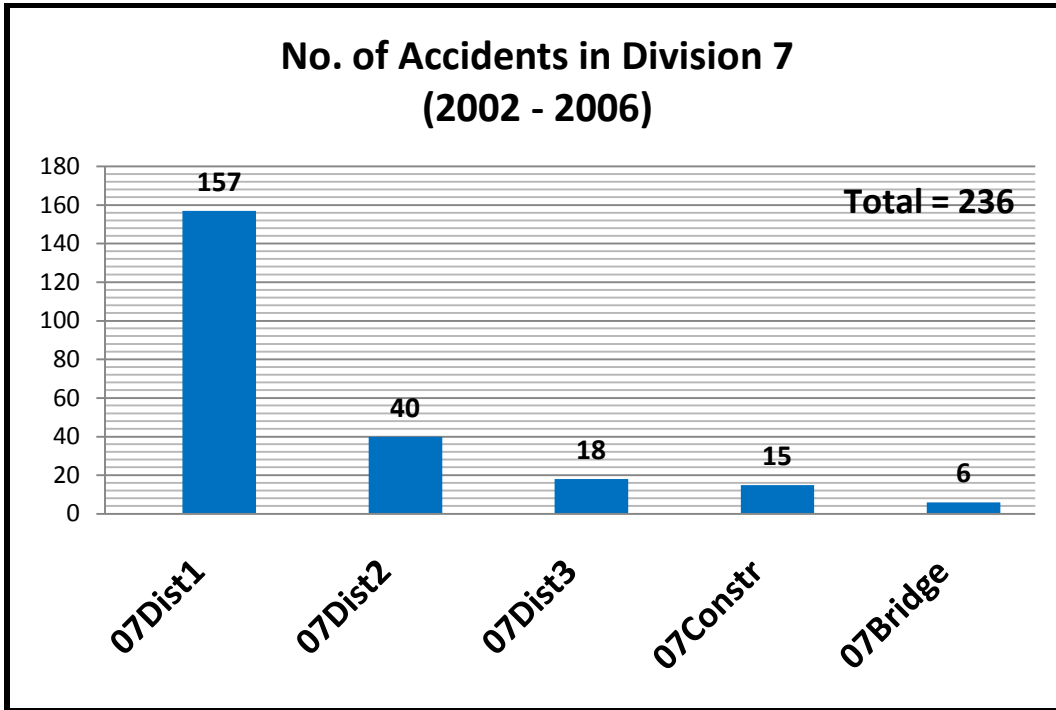
According to the chart below, the greatest percentage of accidents involved male employee with 80%. Females were involved approximately 14% of the accidents in Division 6. This could be due to a greater male population in the Division 6 workforce as observed from other divisions.



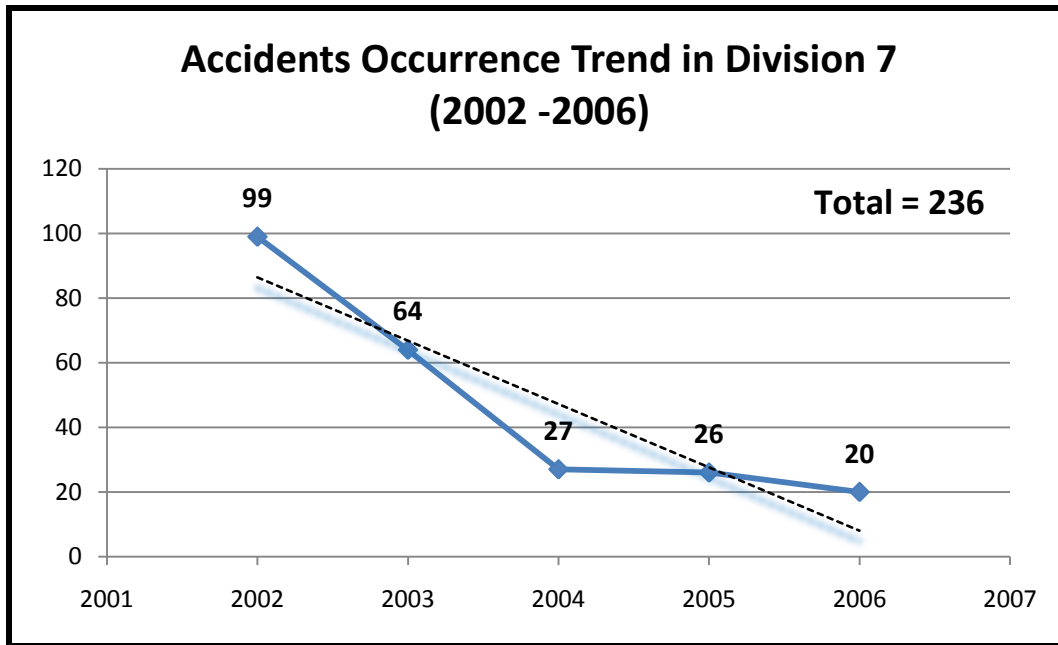
DIVISION 7

1. Number of Accidents

The numbers of accidents in Division 6 from 2002 to 2006 are shown in the graph below. There were a total of 236 accidents in Division 7. According to the RISKMASTER database, the greatest number of accidents occurred in District 1 with 157 accidents. The graph shows a declining order throughout the districts and units.

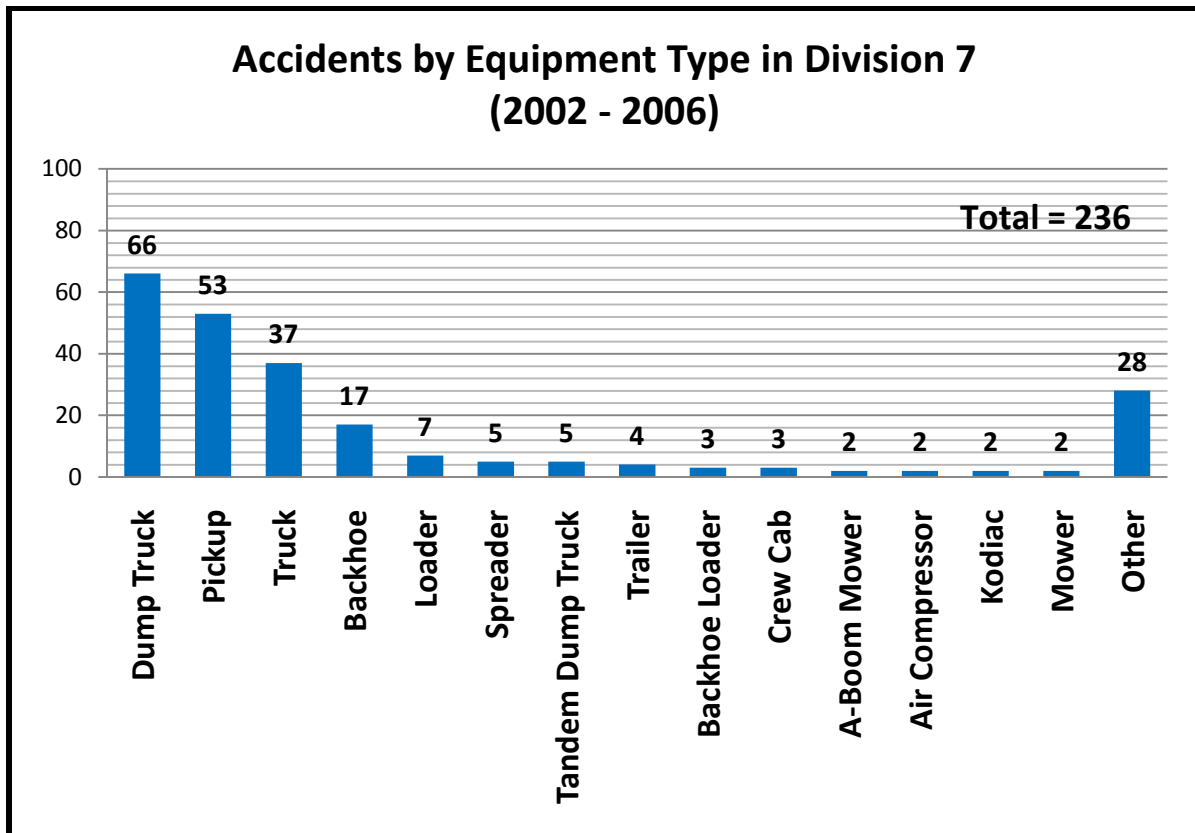


The graph below shows the trend line throughout the years for the number of accidents related to the year. The graph shows a trend line that is steeply descending from year 2002 to 2006 with the number of accidents decreased from 99 to 20. This decline in number of accidents warrants further study as this trend should be typical for the entire NCDOT divisions.



2. Accidents by Equipment Type

The RISKMASTER data show that in Division 7, a total of 236 accidents by different equipment types occurred during the period of 2002 to 2006. “Dump trucks” and “pickups” bear the most accidents with 66 and 53 accidents respectively. In the manner of performance, they had the most number of accidents by equipment class. The graph shows the values in a descending order. The “Other” equipment types are listed in the table below.

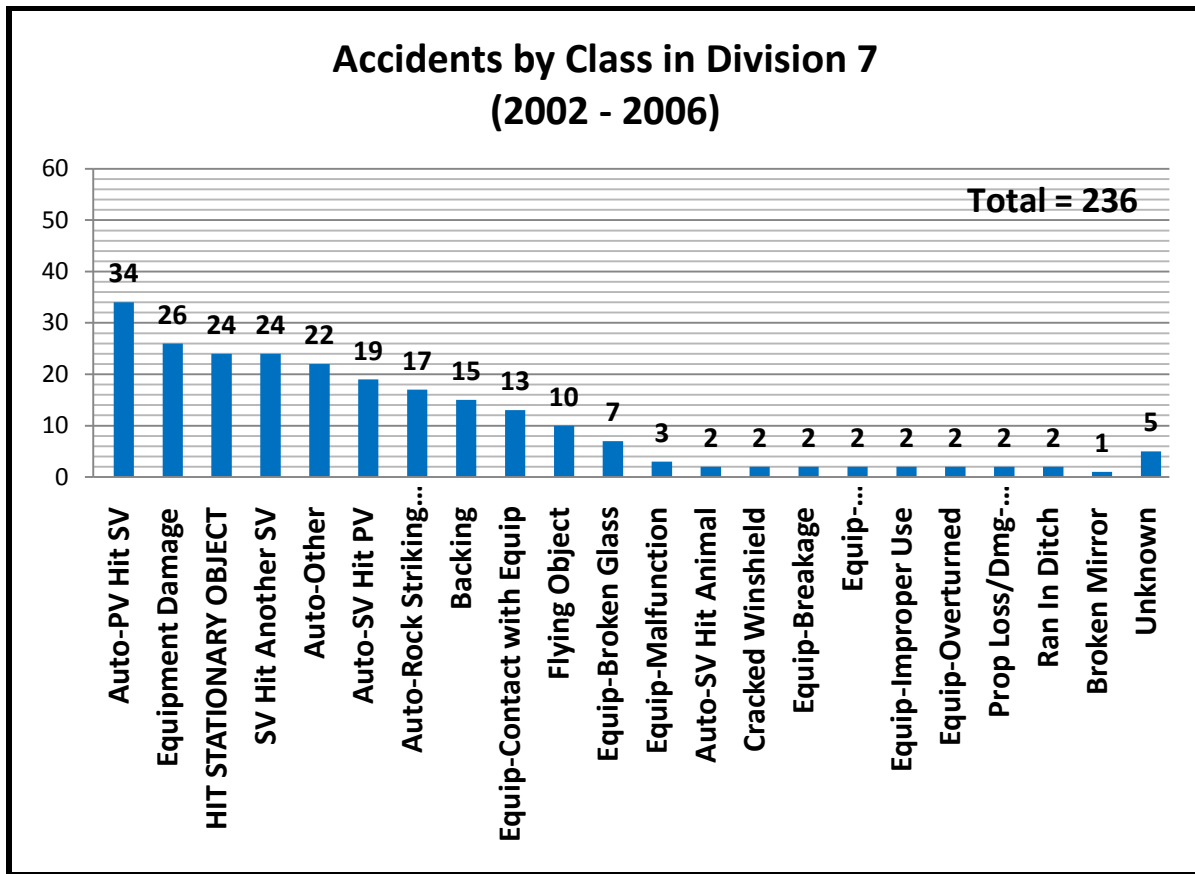


Twenty eight equipments classified as “Other” are listed below.

12' Plow	Distance Meter	Radio
3500 Crew Cab	Equipment Type	Roller
Asphalt Kettle Pump	Flat Bed Truck	Salt Spreader
Asphalt Roller	Grader	Sign
Attenuator	Jeep	Suburban
Broom	Lowboy	Tilt Cab Truck
Brush Chipper	Motor Grader	Tractor
Car	Patch Roller Trailer	Tractor Mower
Crane Boom	Patcher	Truck 7500 CVW

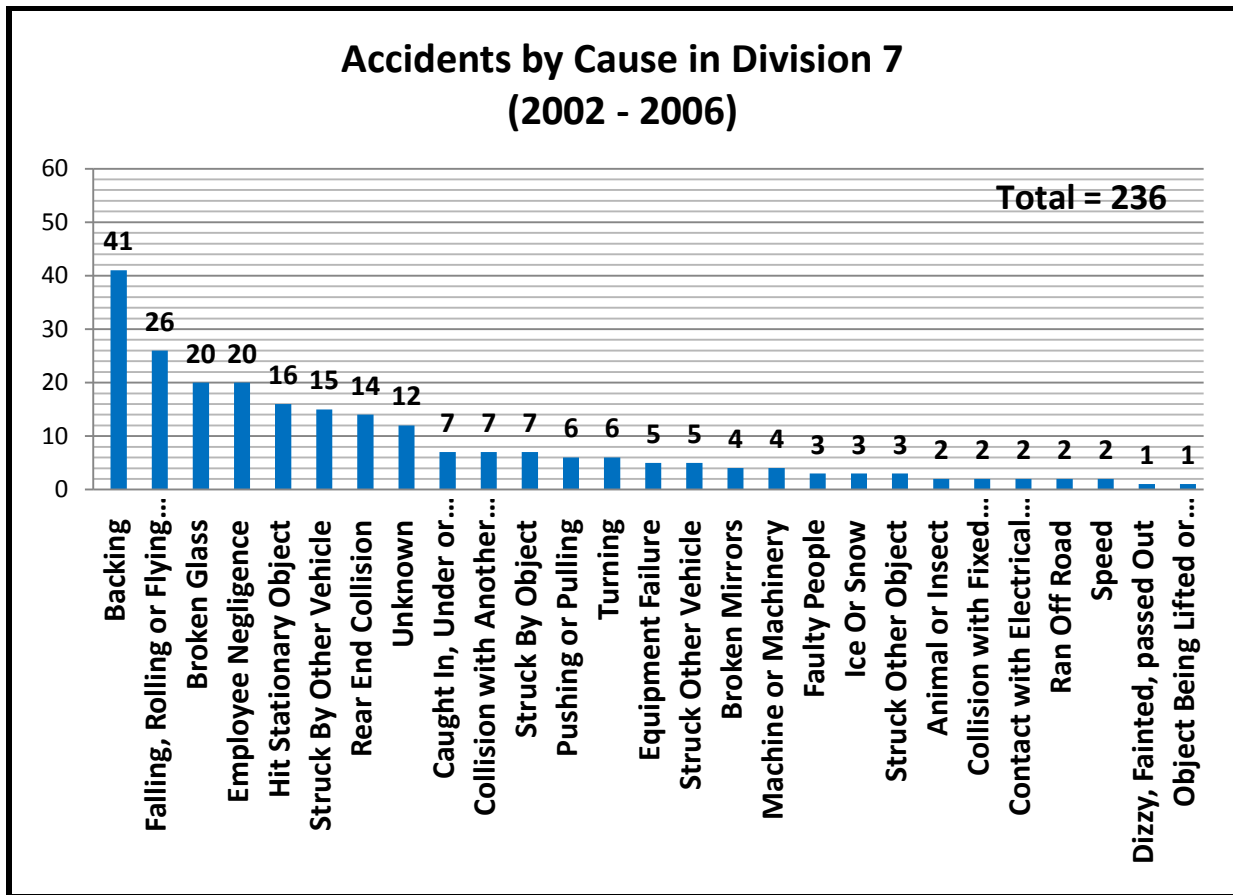
3. Accident by Class

The graph below shows the accidents by class in descending order. “Auto PV Hitting SV” and “Equipment damage” had the greatest number of accidents. The next largest values were: “Hit a stationary object,” “SV hit another SV” and “Auto SV hitting PV.” The least amount of accidents was in the “Broken Mirror” category with one accident. The graph displays the data in a descending order.



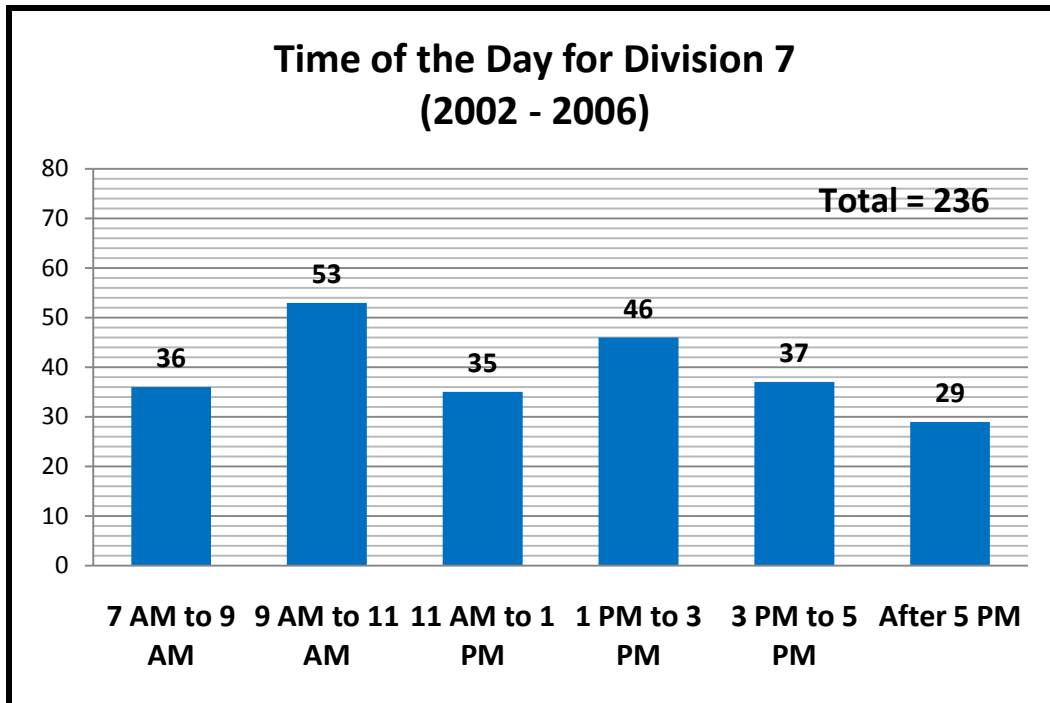
4. Accidents by Cause

The graph below relates the accidents with their cause in Division 7. According to the RISKMASTER database, throughout the study period of 2002 to 2006, the leading causes of accidents were due to “Backing” with 41 records and “Falling or fly objects” with 26 records. The fewest accidents occurred due to “Fainting, dizzy, passing out” and “Lifting up an object” each with one accident recorded. The data is displayed in a declining order.



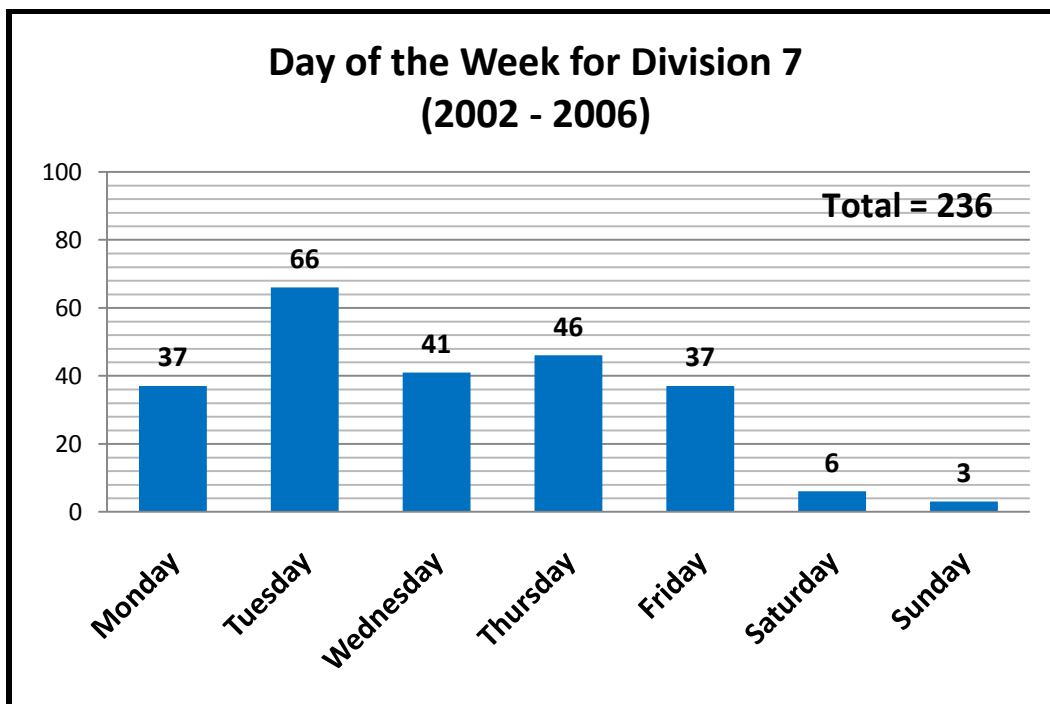
5. Time of the Day

The graph below shows the data divided into six different time periods. The two with the largest number of accidents occurred were 9 AM to 11 AM and 1 PM to 3 PM with 53 and 46 respectively. Note that relatively higher number of accidents at 29 occurred after 5 PM.



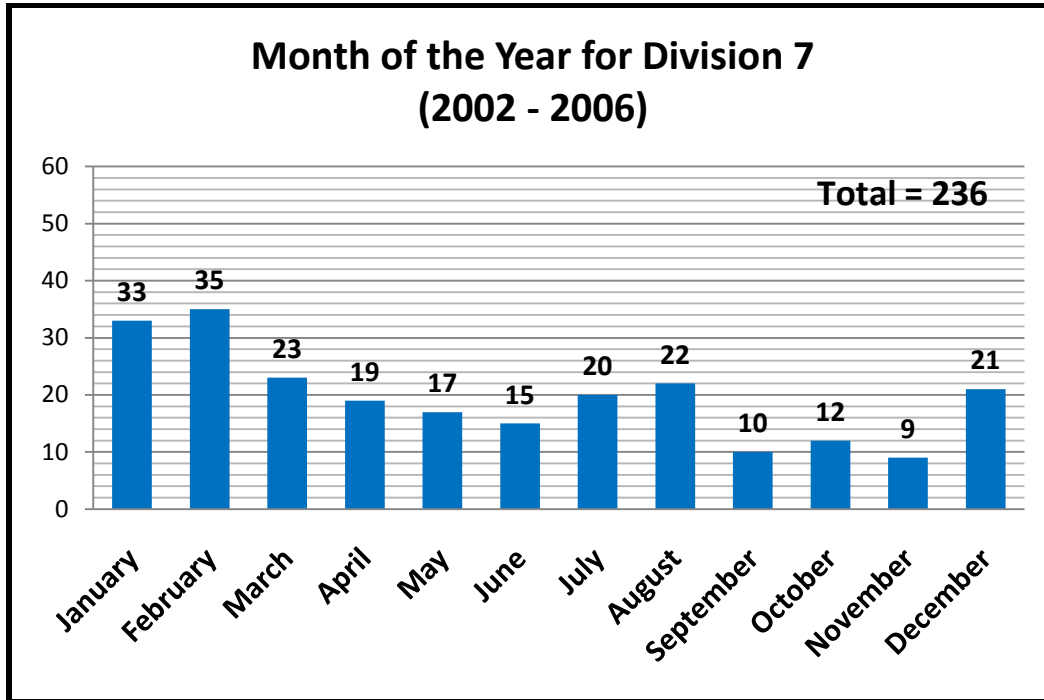
6. Day of the Week

The graph below displays the RISKMASTER data for Division 7 during 2002 to 2006 as a graph broken into days of the week. It indicates that throughout the weekdays, the number of accidents in Division 7 fluctuated with the highest occurrence recorded in Tuesday. The number of accidents dropped drastically over the weekends.



7. Month of the Year

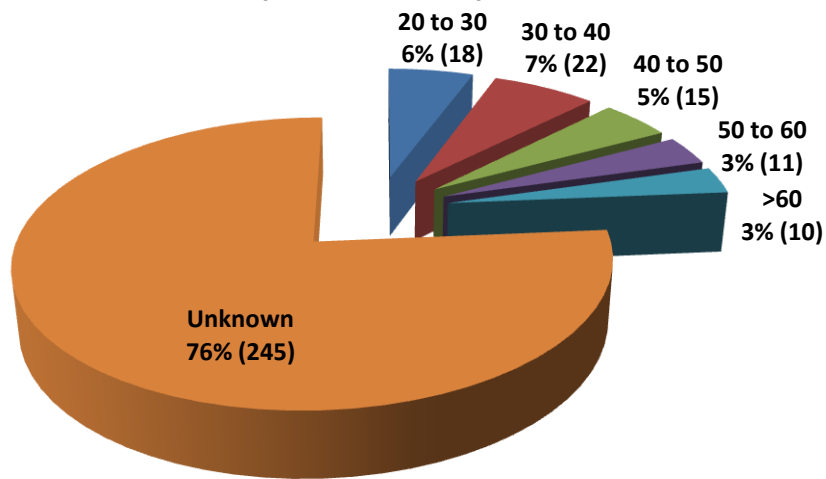
The largest number of accidents occurred during February with total of 35 accidents. The least amount of accidents was recorded during the month of November with only 9 accidents. The trend line of the graph shows a dip during the middle of the year. This could be due to less traffic on the roads during the middle of the year prior to the start of summer season.



8. Age Group

The accidents are displayed in the 6 different age groups. The largest percentage in the chart was claimed by the “Unknown” category with 76%. The second largest was between the age group of 30 to 40 years old with a count of 22 accidents (7%) followed by the age group of 20 to 30 with 18 accidents (6%).

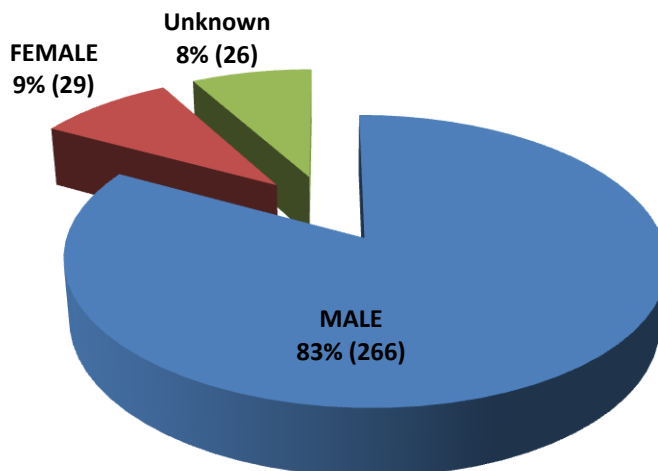
Accidents by Age Group for Division 7 (2002 - 2006)



9. Gender

In Division 7, men were involved in 83% of the accidents (total of 266), while women were involved in 9%, (29). 8% were recorded without clear gender information.

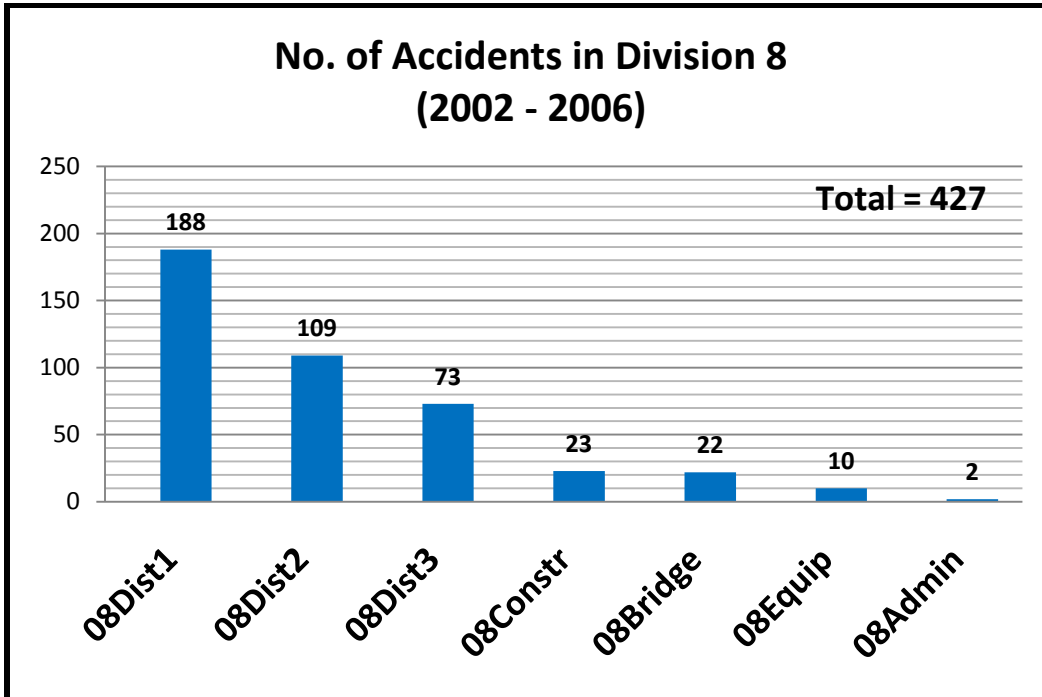
Accidents by Gender for Division 7 (2002 - 2006)



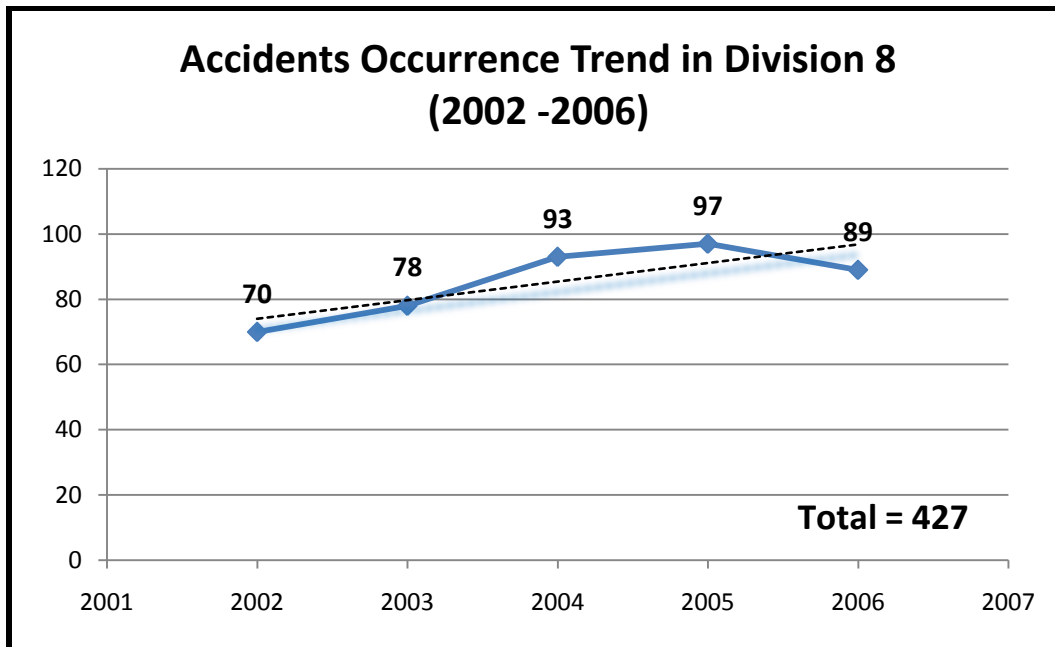
DIVISION 8

1. Number of Accidents

The number of accidents occurred in Division 8 from 2002 to 2006 are shown in the graph below per districts and each working units. The greatest number of accidents occurred in District 1 with 188 accidents. This makes about 45% of the entire accidents that occurred in Division 8. The graph shows a declining order throughout the districts.

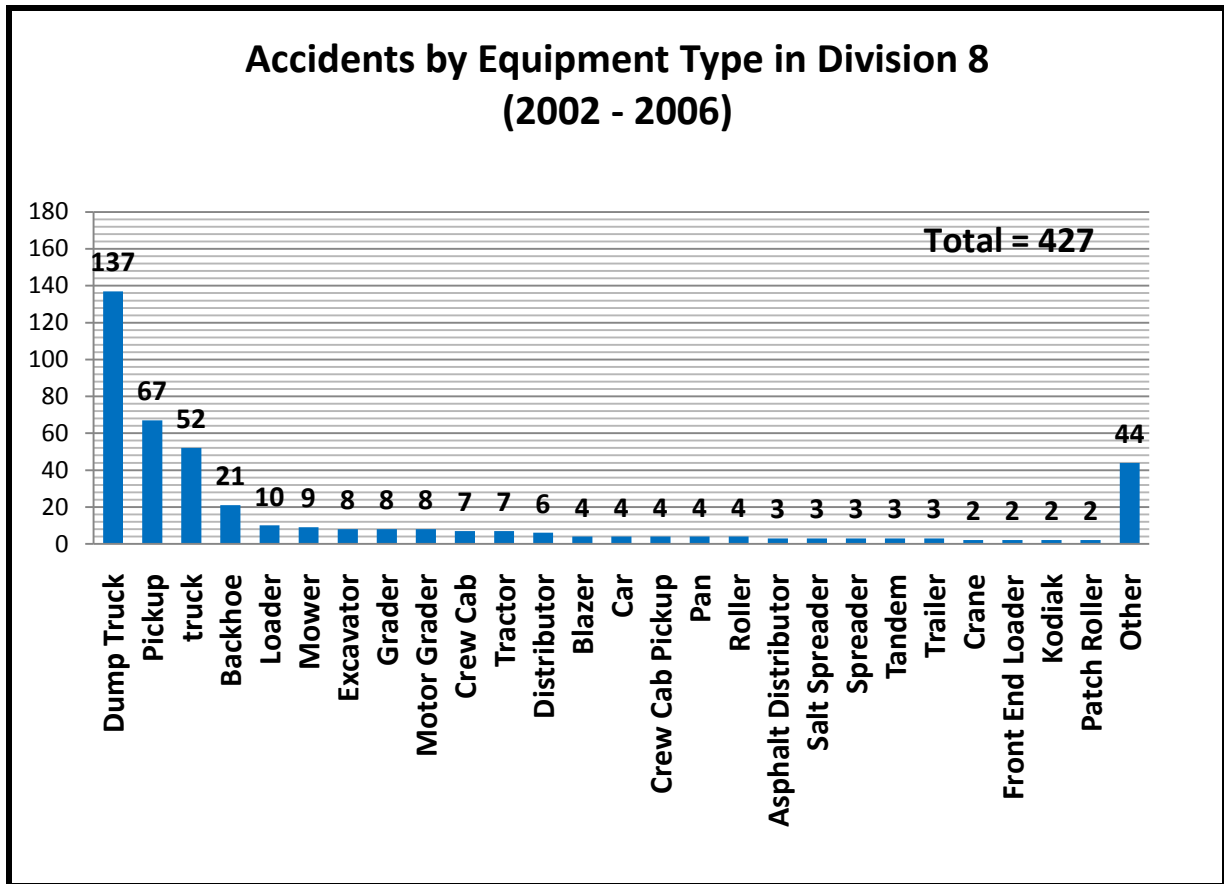


The graph below shows the trend line throughout the years for the number of accidents related to the year. The graph shows gradually ascending trend line from 2002 to 2006. The graph was showing an increase between the years 2002 to 2005. Although to lesser extent, the division saw a steady increase of accidents that peaked at 97 in 2005.



2. Accidents by Equipment Type

In Division 8, a total of 427 accidents by different equipment types occurred during the period of 2002 to 2006, with the “Dump truck” category bearing the most with 137 accidents. “Pickups” with 67 accidents and other truck types with 52 accidents also had a large value as they play a large part in roadside activity. In the manner of performance, they had the most number of accidents by equipment class. The graph shows the values in a declining fashion. Some of the “Other” equipment types are listed in the table below.

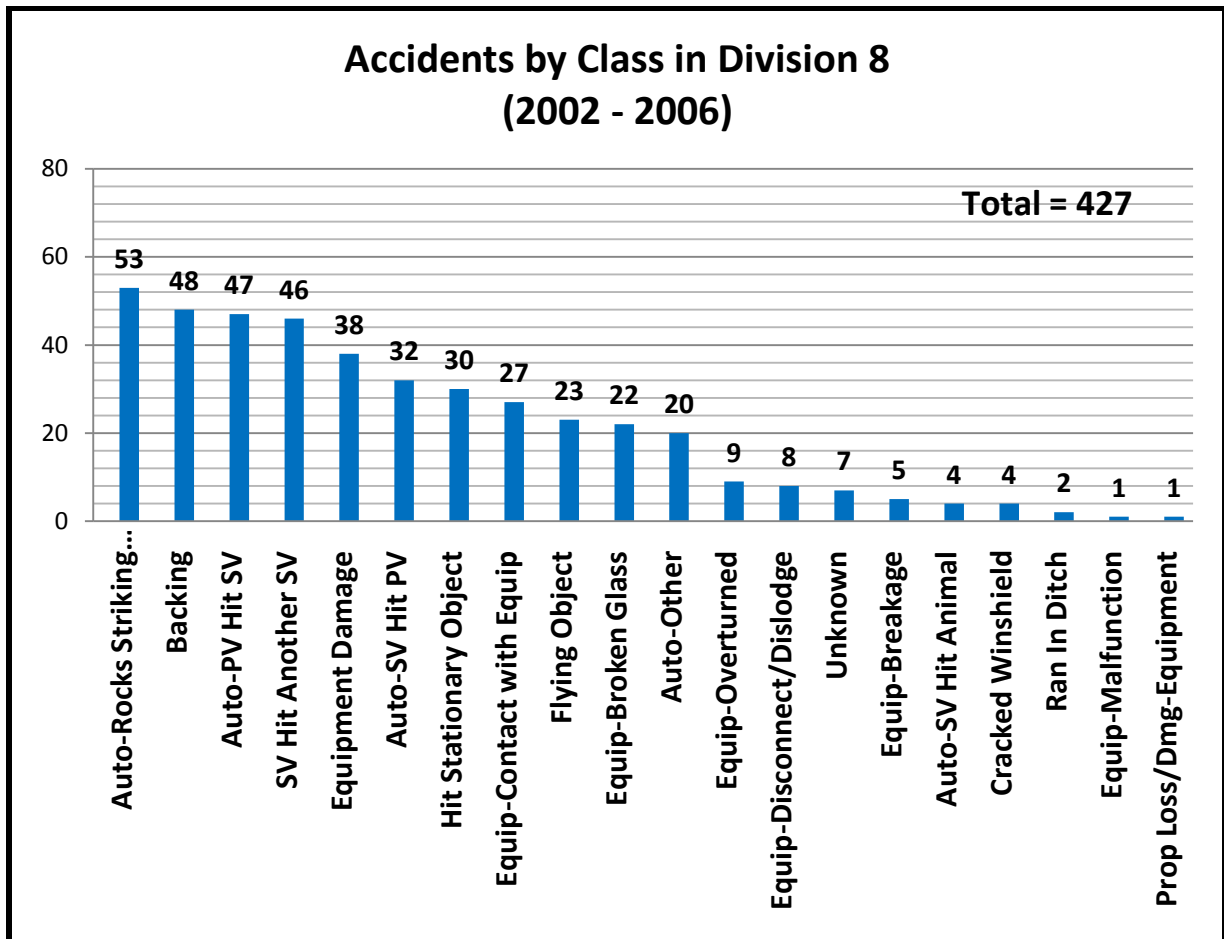


The equipments that make up the “Other” category are listed in the table below.

Plow	Boom	Flatbed Truck
Tamp	Box	Force Feed Loader
Tandem Dump Truck	Brine Tank	Link Belt Excavator
Tractor Broom	Broom Tractor	mulch blower
Tractor Mower	Brush Chipper	Mulch Spreader
Utility Truck	Bucket	N/A
A POV	Case Excavator	Radio-MT1000
Aggregate Spreader	Case loader	SWB Truck
Air Compressor	Distributor Tank	Tank
Asphalt Roller	Explorer	Truck/Tractor
Belt Loader	Flail Mower	Widener

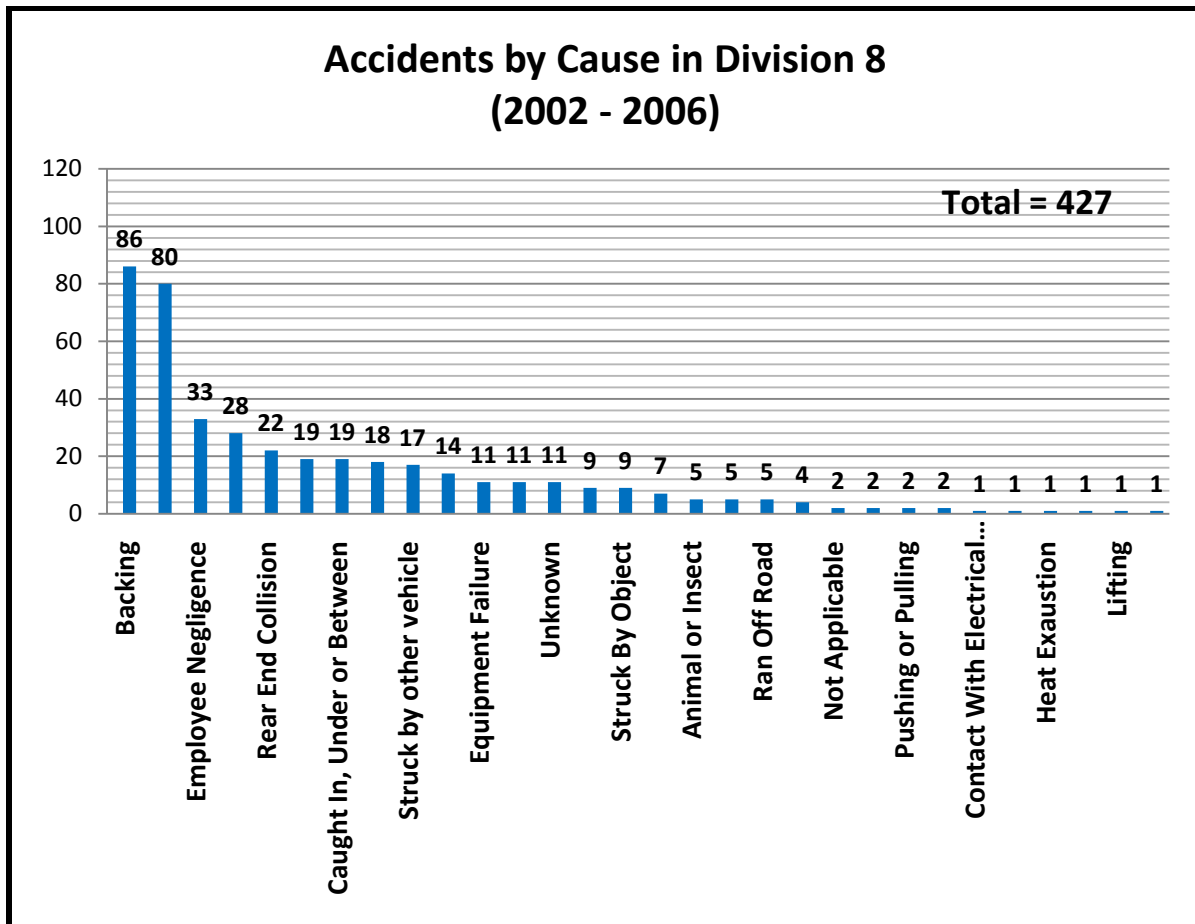
3. Accident by Class

Through analyzing the data sorted by accidents by class in Division 8, the “Rocks striking auto” had the highest value with 53. The graph shows that “Backing” and “Auto PV hitting SV” accidents had the next highest records with 48 and 47. The graph displays the data in a descending order.



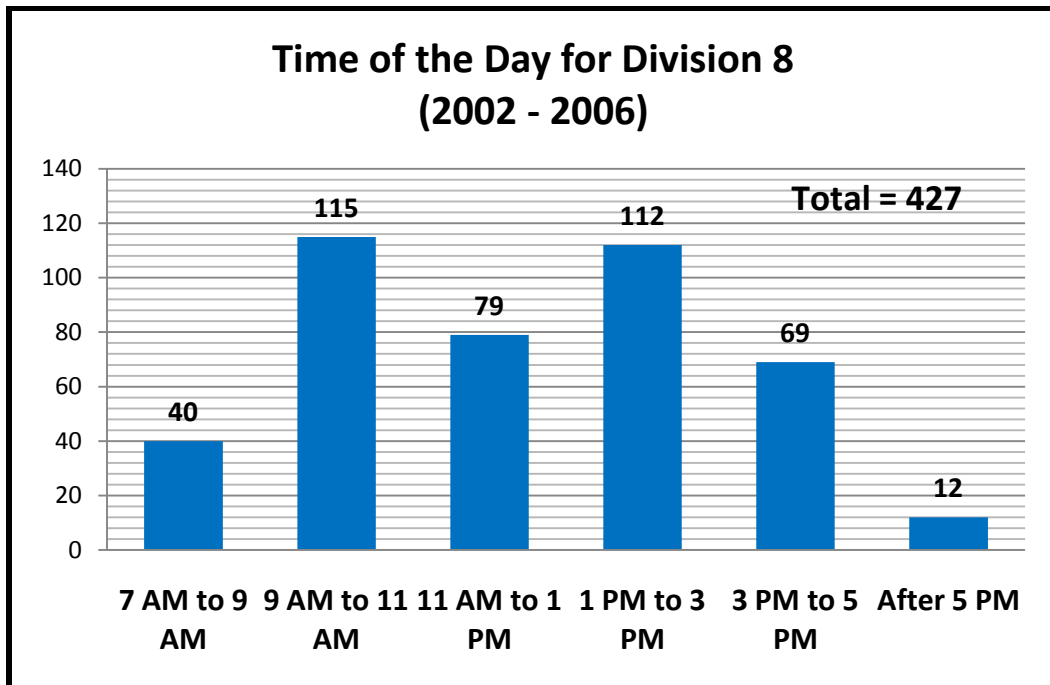
4. Accidents by Cause

The graph below relates the accidents with their causes in Division 8. According to the RISKMASTER database, throughout the study period of 2002 to 2006, the leading cause of accidents was due to “Backing” with 86 accidents and “Employee negligence” with 80 accidents. The fewest accidents were due to “Heat exhaustion” and “Lifting an object” each with 1 record. The data is displayed in a descending order.



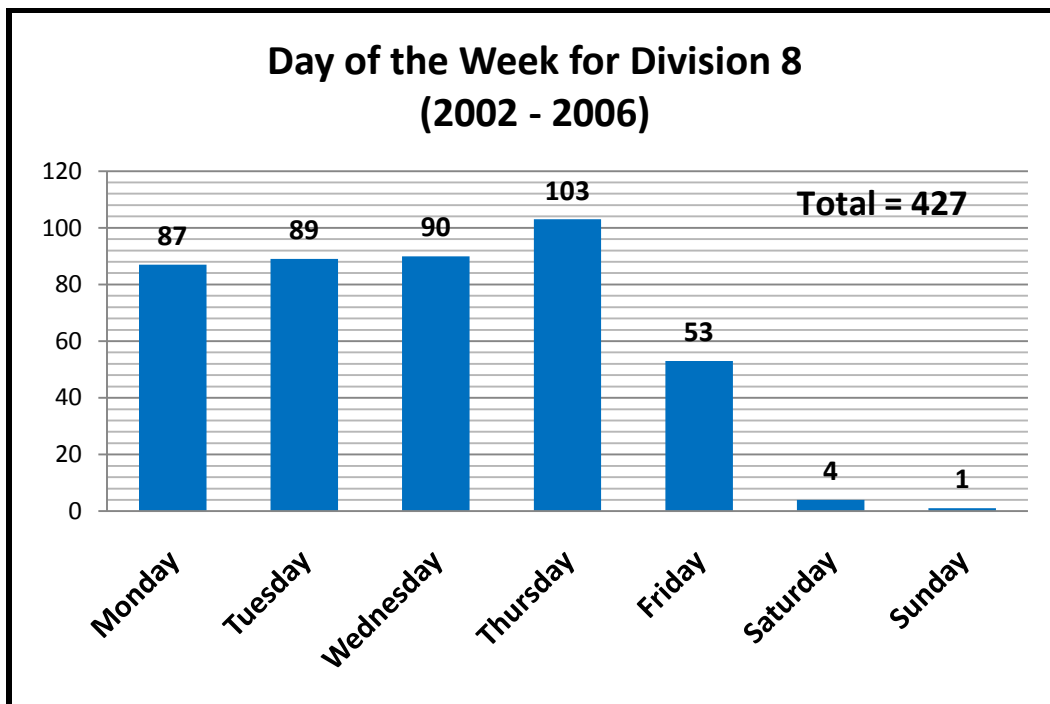
5. Time of the Day

The chart below shows the RISKMASTER data divided into six different time periods. The two time spans with the highest number of records were between 9 AM to 11 AM with 115 records and between 1 PM to 3 PM with 112 records. The lowest number of accidents occurred after 5 PM (and before 7 AM the following morning) with only 12 records.



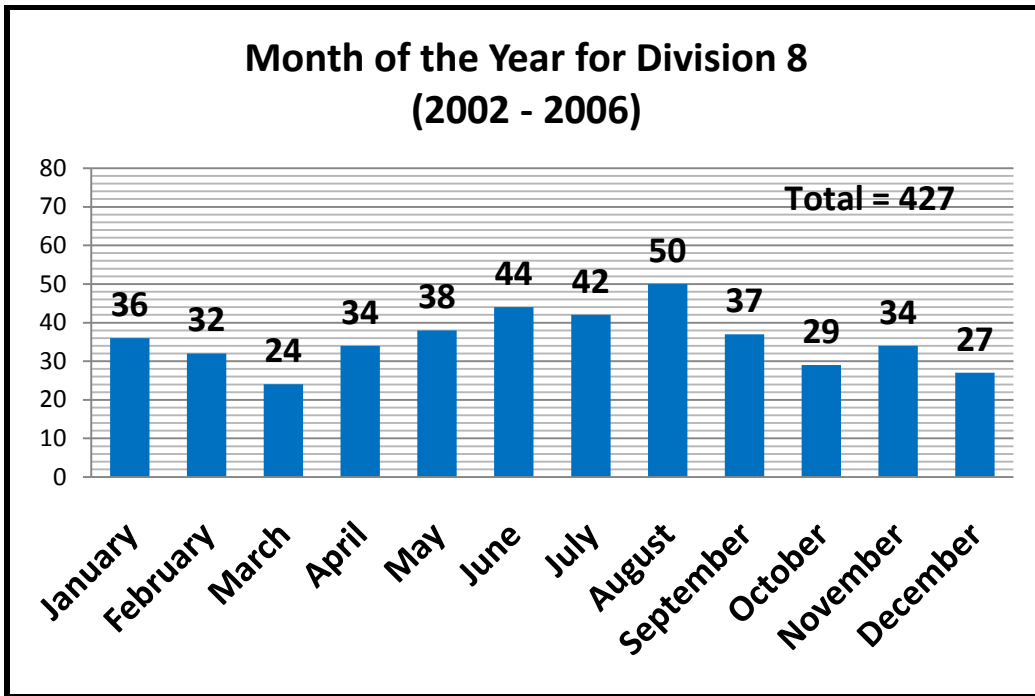
6. Day of the Week

The graph below displays the occurrence of accidents in Division 8 as a graph broken into days of the week during the study period. It shows gradual increase of accidents from Monday to Thursday (peaked on Thursday with a count of 103 accidents) and drastic decrease towards the weekend.



7. Month of the Year

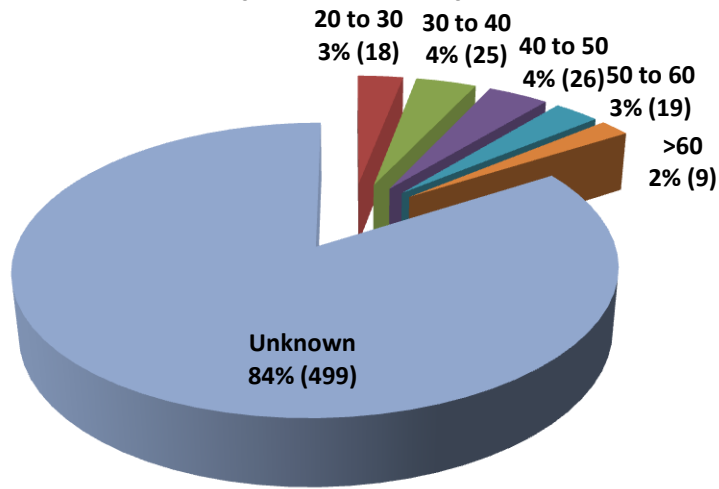
In Division 8, the majority of the accidents occurred during the middle of the year (June, July, and August with the total of 136 accidents). The least amount of accidents occurred during the month of March with 24 accidents. The graph shows that there is not a month (other than August with 50 accidents) that has a significantly larger number of accidents than any other months.



8. Age Group

The numbers of accidents occurrence are displayed per the 6 different age groups as shown below. The largest percentage in the chart was claimed by the “Unknown” category with 84%. Accidents occurred relatively evenly among different age groups with the variation of 8 counts (excluding the age group greater than 60).

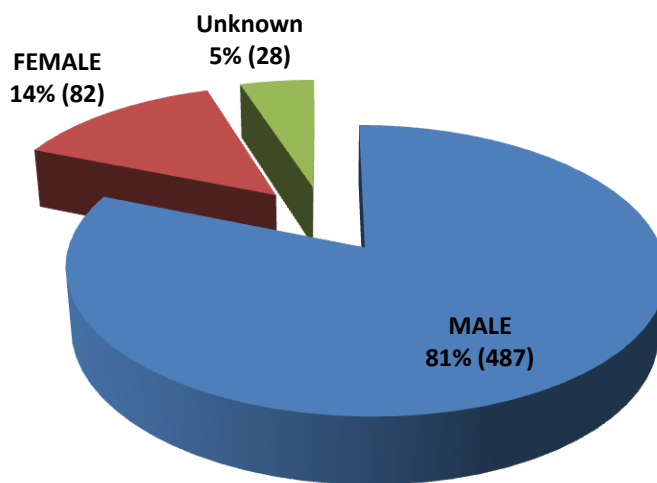
Accidents by Age Group for Division 8 (2002 - 2006)



9. Gender

According to the chart below, the greatest percentage of accidents involved male employee with total of 81% (487). Females were involved with 14% (82) and the remaining was accounted for as an unknown.

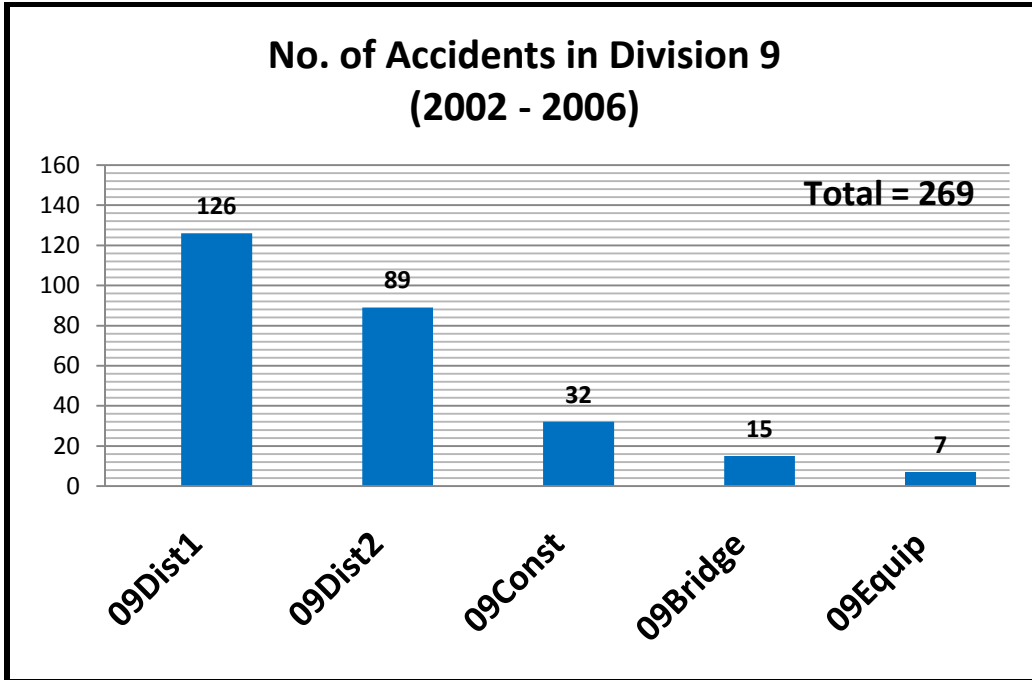
Accidents by Gender for Division 6 (2002 - 2006)



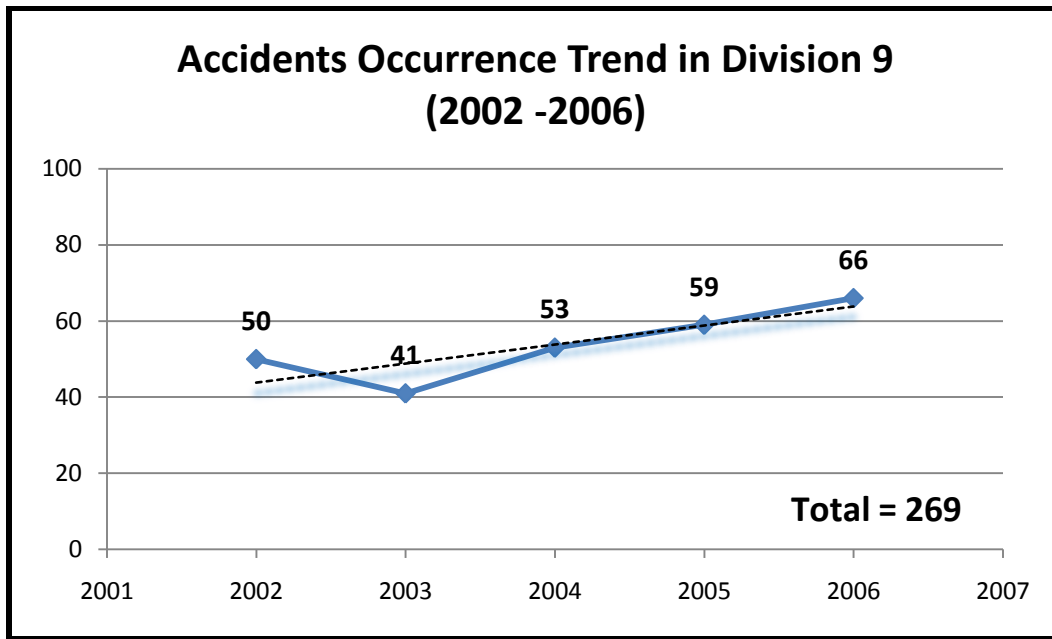
DIVISION 9

1. Number of Accidents

The numbers of accidents in Division 9 from 2002 to 2006 are shown in the graph below per its districts and working units. As can be seen from the chart, most accidents occurred in District 1 with a total 126 followed by District 2 with 89 accidents. The graph shows counts of accidents occurred on a declining order.

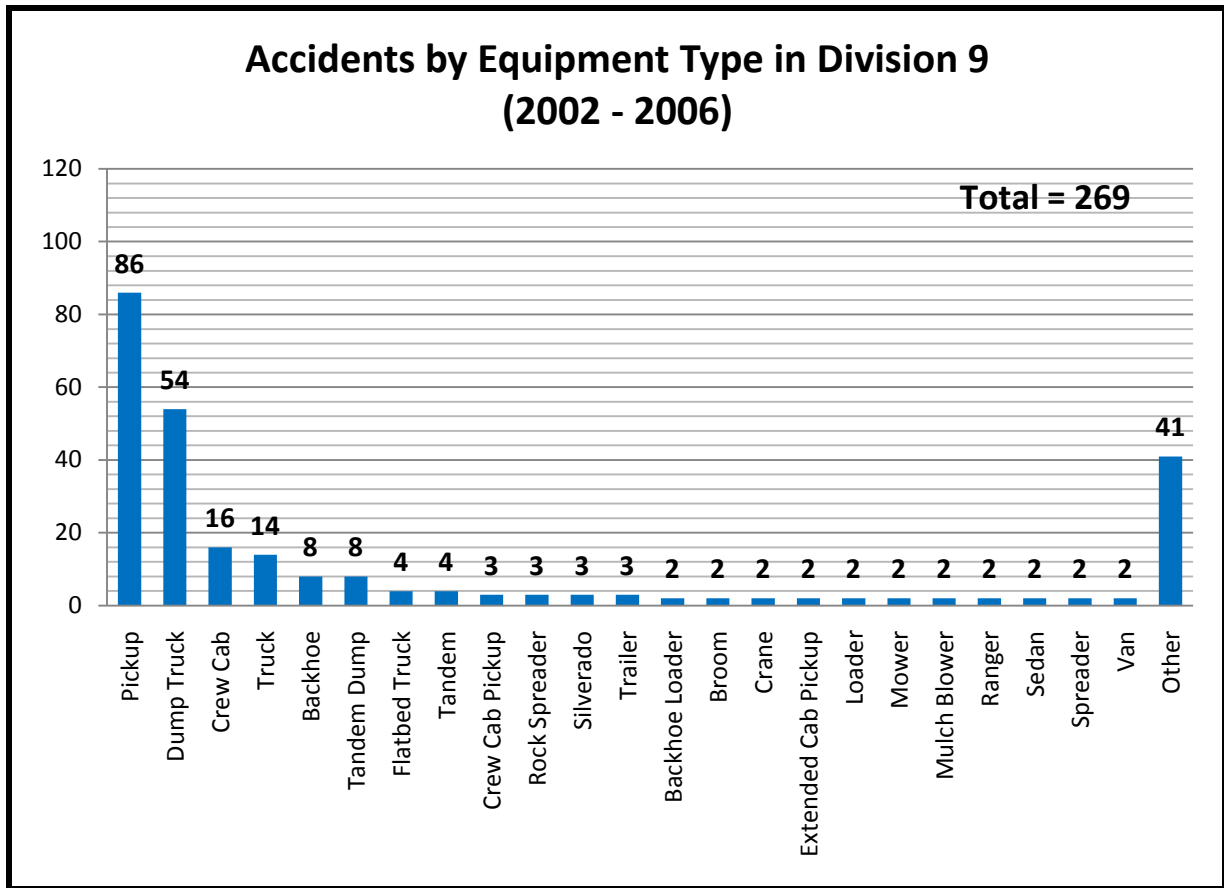


The chart showing the trend line below depicts steady increase of accidents over the time span after a slight descend in 2003. The numbers of accidents are increasing at a rate of about 7 accidents per year thereafter until 2006.



2. Accidents by Equipment Type

During the study period of 2002 to 2006, Division 9 had a total of 269 accidents occurred which involved different equipment type as shown from the chart. “Pickup” trucks and “Dump trucks” were the two leading equipment types for accidents. The “Other” category had a fairly large number with 41 accidents. The graph shows the values in a declining fashion. Some of the “Other” equipment types are listed in the table below.

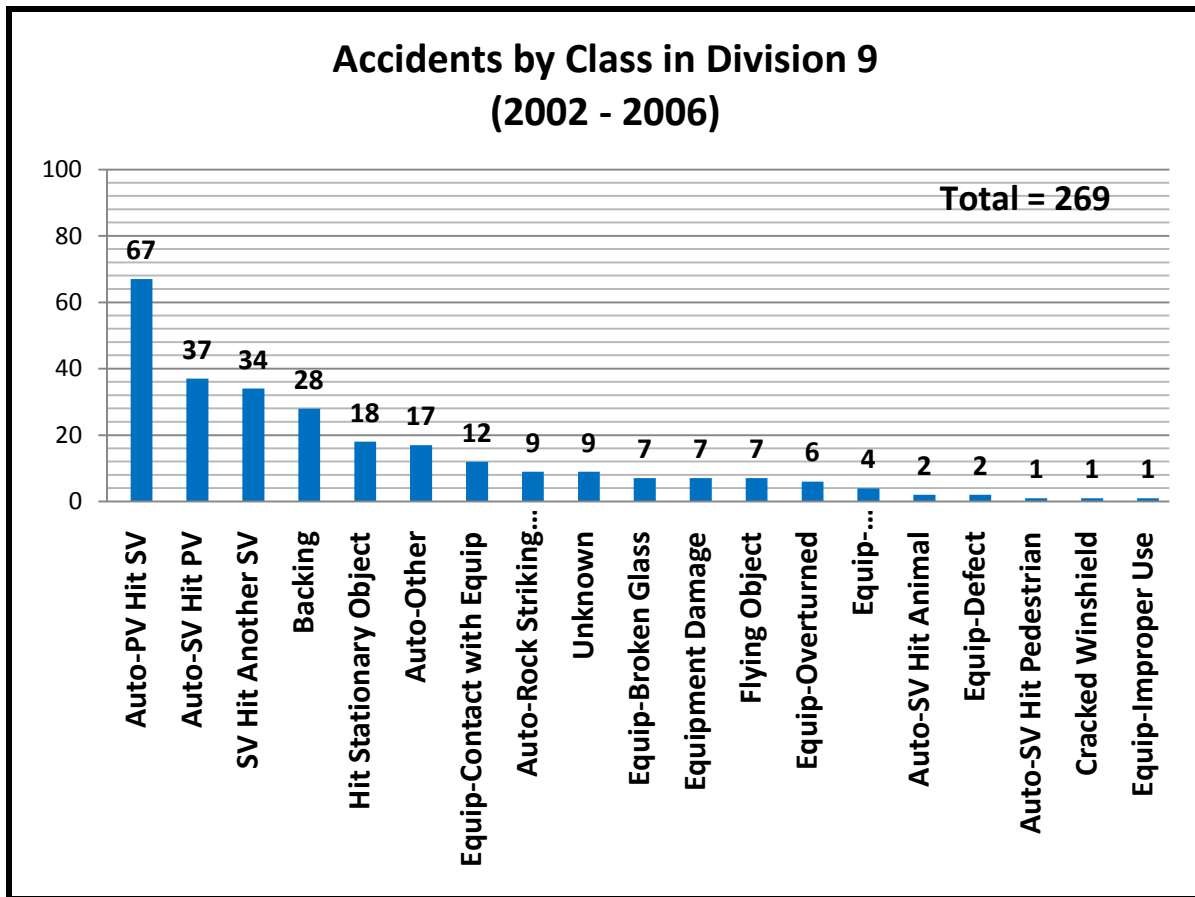


The equipments that make up the “Other” category are listed in the table below.

2500	Crewcab Dump	Roller Trailer
2574	Dozer	Snow Plow
3500	Freightliner	Suburban
4700	Grader	SWB Dump Truck
350 Super Duty	Hat	Sweeper
Air Compressor	Inbody Spreader	Trackhoe
Asphalt Distributor	Kettle	Tractor
Asphalt Kettle	Kodiaik	Tractor Boom
Attenuator	LT9511	Traffic Barrier Trailer Mounted
Broom Trailer	Not reported	TS-00
by Protec	One-Ton Truck	Tundra
C7500 Hydroseeder	Pan	Unknown - hit and run
Car	Paver	Utility Truck

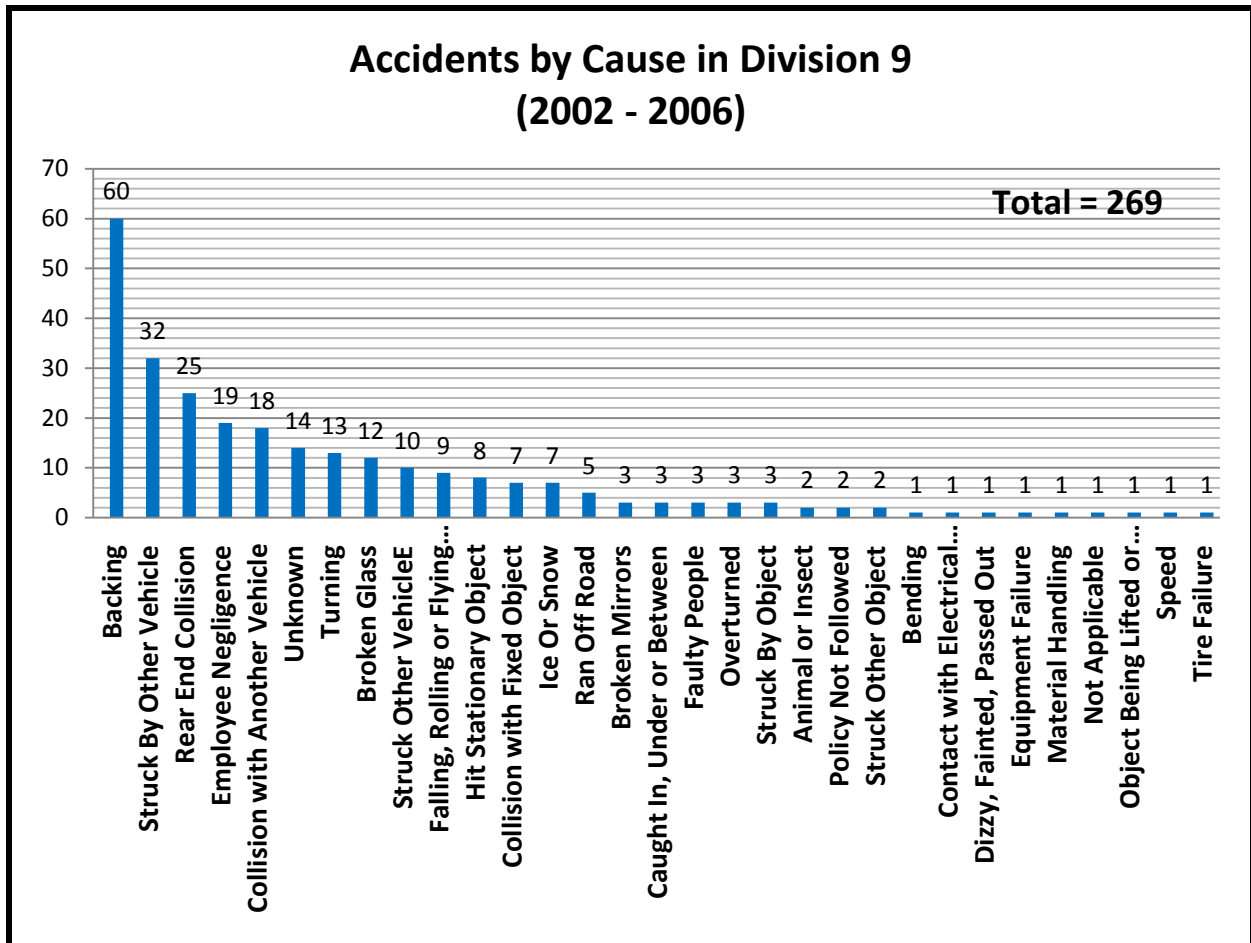
3. Accident by Class

While analyzing data in the accidents by class category in Division 9, “Auto PV hitting SV” accidents had the highest records or 67 (25%). “SV hitting PV” accidents were second on the list while “Backing” related accidents had 28 records. The graph below shows the information in a declining order.



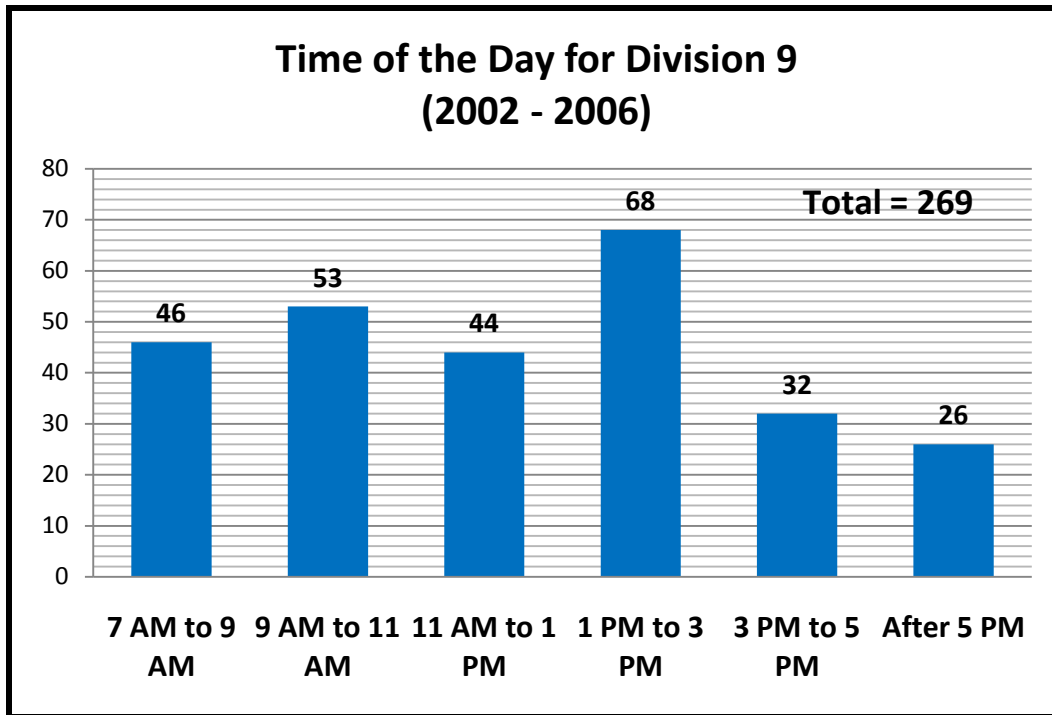
4. Accidents by Cause

According to the RISKMASTER database, the leading cause of accidents was due to “Backing” with 60 accidents and being “Struck by a vehicle” with 32 accidents. The backing category almost doubles the next closest cause of accidents in Division 9. The fewest accidents occurred due to “Speed” and “Tire failure” each with 1 record. The data is displayed in a descending order.



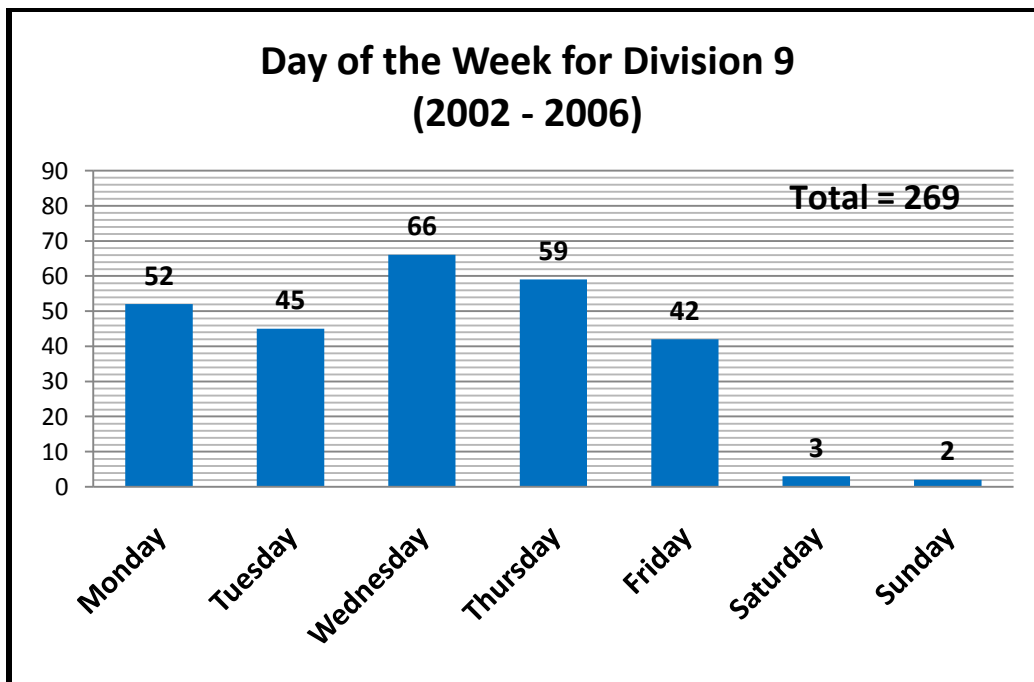
5. Time of the Day

The graph below shows the accident records divided into six different time spans in Division 9. The two with the largest number of accidents were between 1 PM to 3 PM with 68 accidents and 9 AM to 11 AM with 53 accidents.



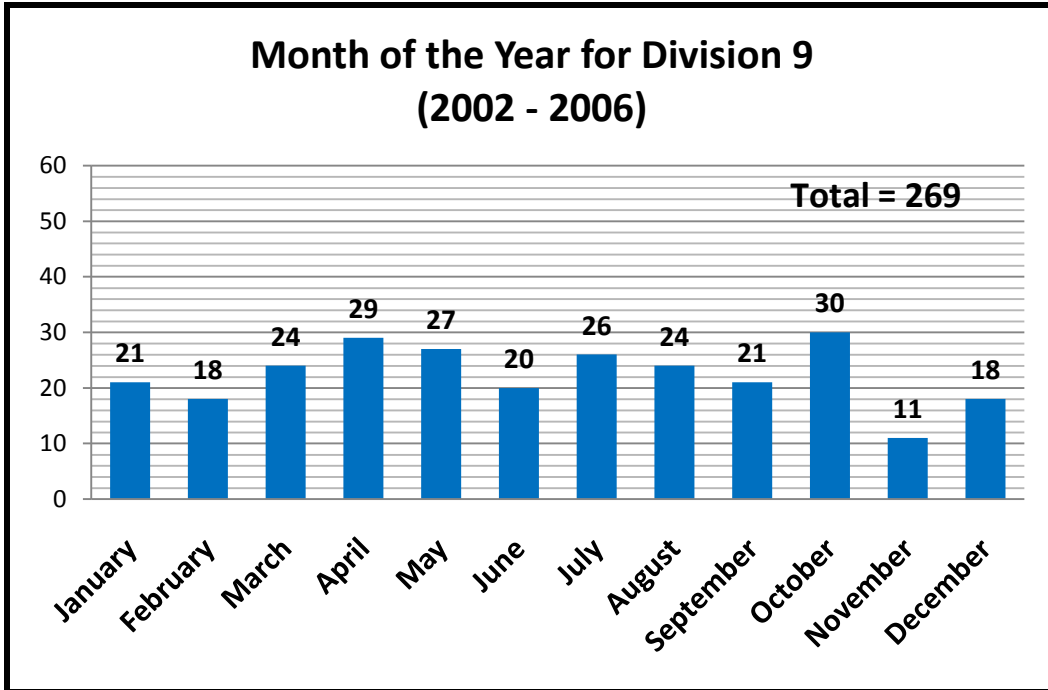
6. Day of the Week

The graph below indicates some fluctuations during the weekdays from Monday to Friday with the highest number of accidents recorded on Wednesday with a total of 66. Five accidents are accounted for during the weekend.



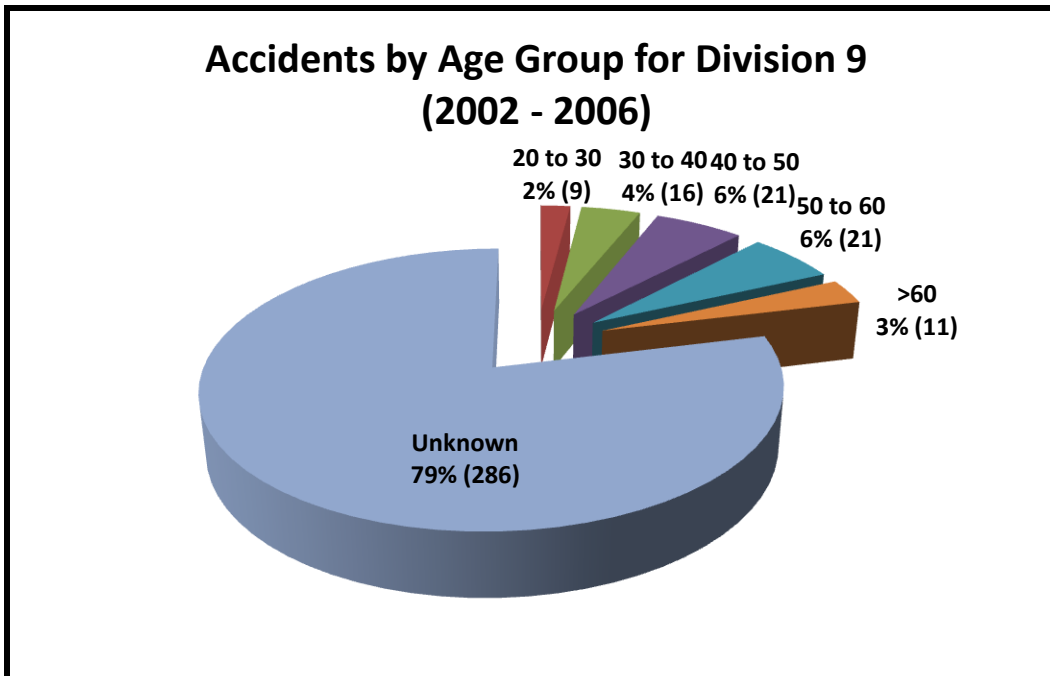
7. Month of the Year

The data below shows clear fluctuations in the number of accidents related to the month of their occurrence. The month of October had the greatest number of accidents with a total of 30 while November had the least amount of accidents with a value of 11.



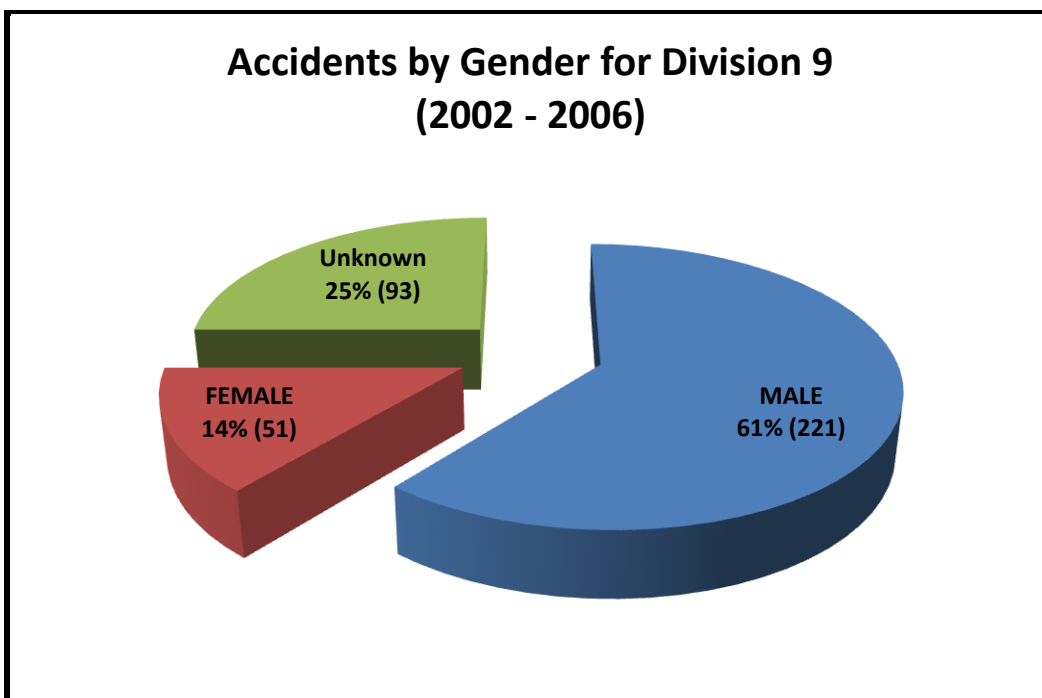
8. Age Group

Throughout the years of 2002 to 2006, the number of accidents in Division 9 has been broken down into various age groups. The age ranges of Division 9 were: less than 20 years old, 20 to 30 years old, 30 to 40 years old, 40 to 50 years old, 50 to 60 years old, greater than 60 years old, and an unknown age group. The less than 20 age class had the least amount of accidents with 9 (2%), followed by greater than 60 years old with 11 (3%). The greatest number of accidents occurred in the unknown age category with a percentage of 79%, followed by 6% in the both the 40 to 50 and 50 to 60 age groups.



9. Gender

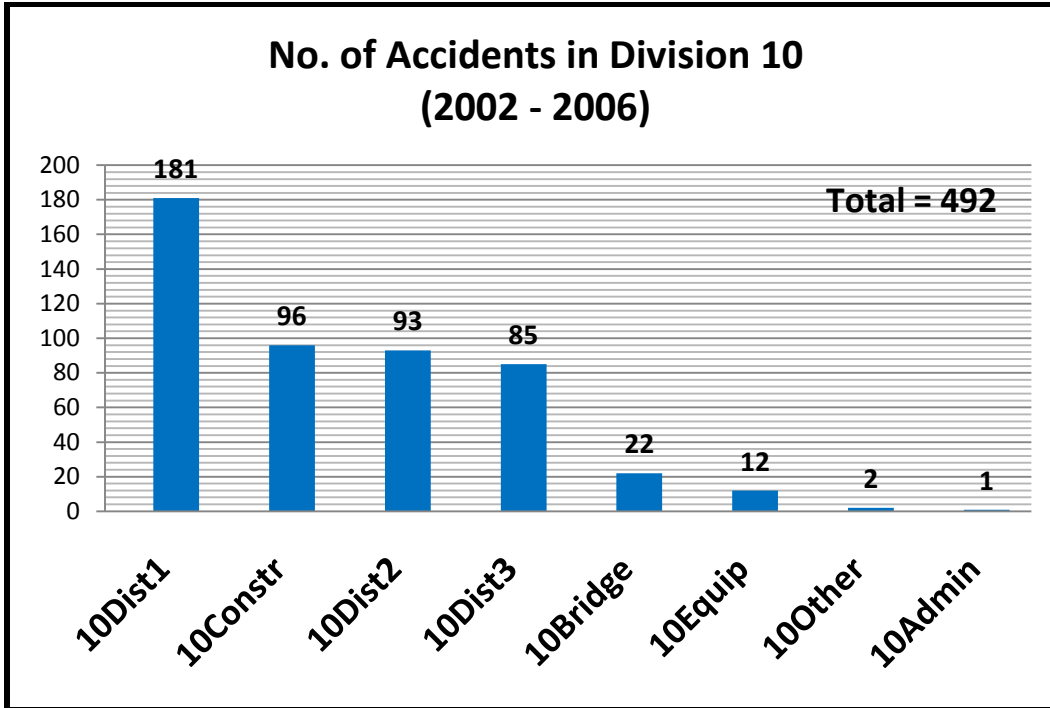
The chart below shows how the two genders relate in the number of accidents that occurred in Division 9. The chart has three different categories: male, female, and unknown. The male category had the highest number with 221 (61%) while the female category had the smallest number of 51 (14%). The data shows that men were at fault the majority of the time, but that may be due to the ratio of men to women operating various machinery and vehicles.



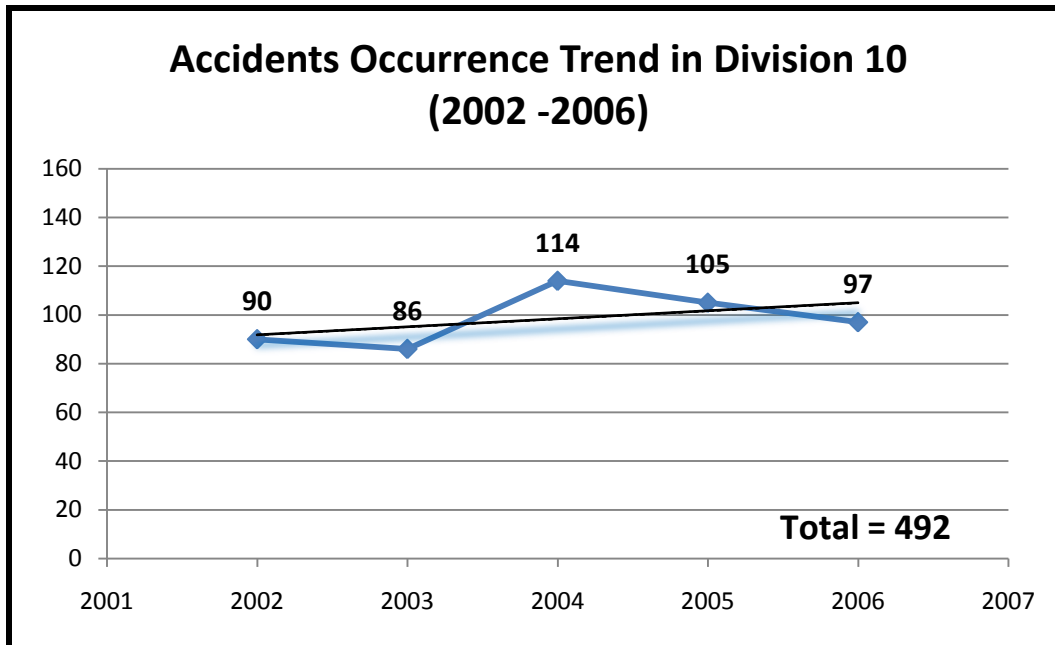
DIVISION 10

1. Number of Accidents

The graph below shows the number of accidents in Division 10 from 2002 to 2006. In Division 10, there were a total of 492 accidents occurred throughout its districts and operating units. The RISKMASTER database shows that the greatest number of accidents occurred in District 1, with 181 accidents. The graph shows a declining order throughout the districts.

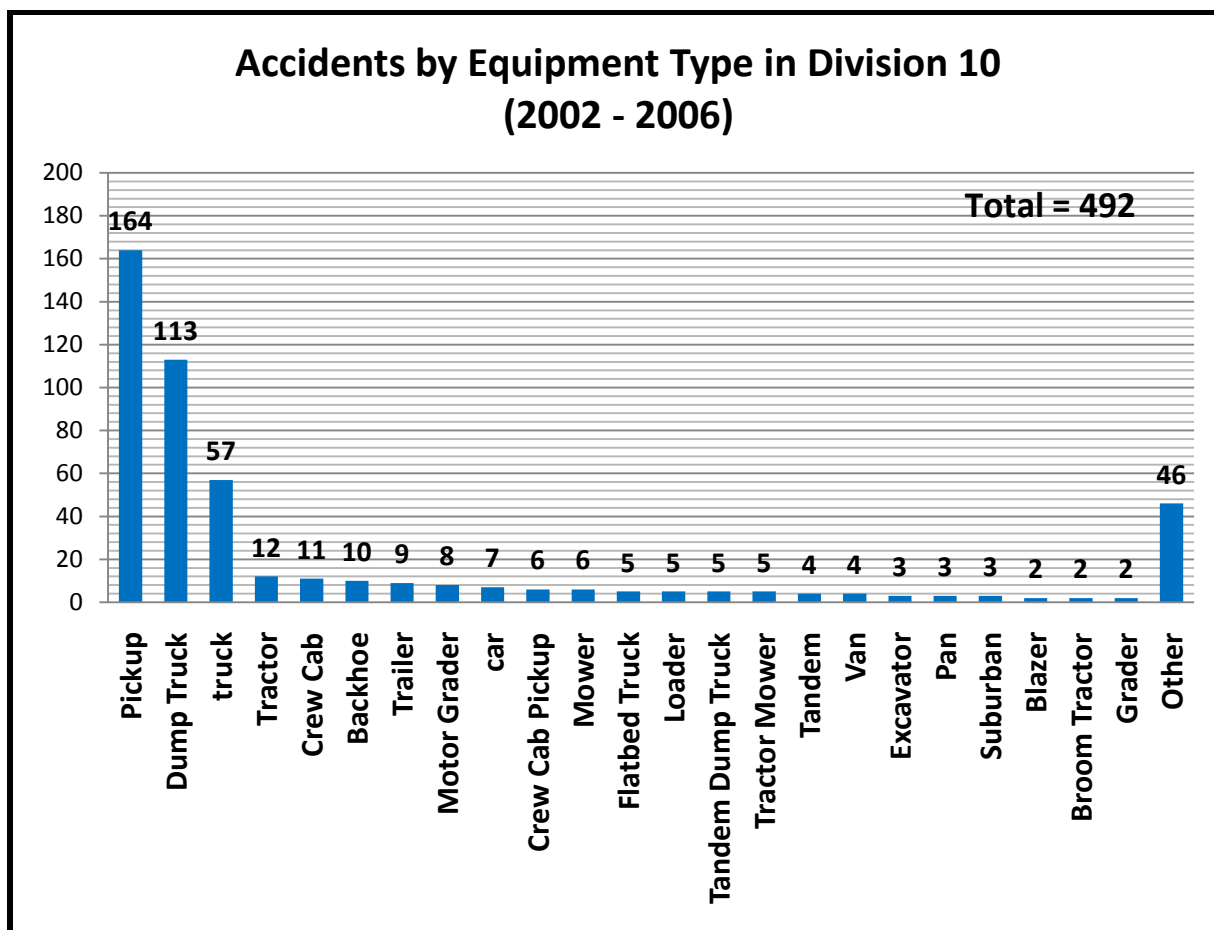


The graph below shows the trend line throughout the years for the number of accidents related to the year. The graph shows a slight increase between the years 2002-2006. It appears that the number of accidents per year begins to decrease after its peak in 2004 with 114 accidents.



2. Accidents by Equipment Type

Division 10 had a total of 492 accidents occurred each involving different type of equipment as shown on the chart below. “Pickup” trucks with 164 accidents and “Dump trucks” with 113 accidents were the two leading equipment types for accidents. The “Other” category had a fairly large number with 46 accidents. Some of the “Other” equipment types are listed in the table below. The graph shows the values in a declining fashion.

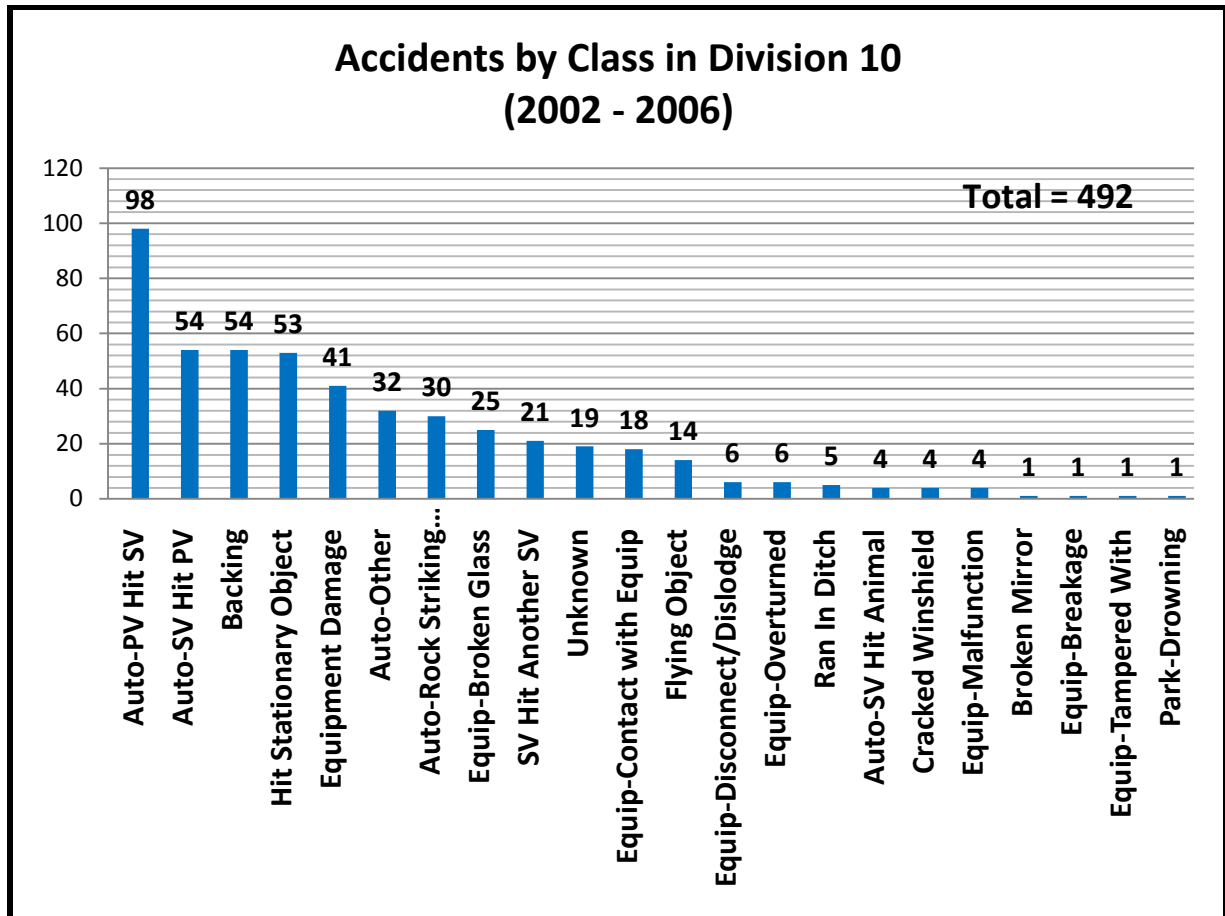


Forty six equipments classified as “Other” are listed below.

Patcher	Crash Cushion	Platform
Roller	Crash Truck	Road Tractor
Scraper	Crew Cab Dump Truck	Spreader
Snow Plow	Dist.	Sweeper
Thermolay	Dresser	Tahoe
Asphalt	Front End Loader	TMA
1 Ton Truck	Fuel Truck	Trackhoe
Air Compressor	Hitachi	Tractor/Lowboy
Arrowboard	Hydraulic Excavator	Truck/tractor
Boom Truck	Jeep	Utility Truck
Compactor	Loader Skid Steer	Water Pump
Crane Truck	Lowboy	Pan Scraper
Crash Assembly		

3. Accident by Class

The graph below shows the accidents by class in Division 10 for the study period. By analyzing data in the accidents by class category in Division 10, “Auto PV hitting SV” accidents had the highest records or 98 (20%), nearly doubled any other accident classes identified. “SV hitting PV” accidents and “Backing” were second on the list with both showing 54 counts. The graph below shows the information in a decreasing order.



4. Accidents by Cause

The graph below relates the accidents with their cause in Division 10. According to the RISKMASTER data, the leading causes of accidents were due to “Backing” with 82 accidents and “Broken glass” with 51 accidents. The fewest accidents occurred due to being “Struck by another object” and “Tire failure” which had 1 accident each. The data is displayed in a decreasing order. The “Other” causes of accidents are listed in the table beneath the graph.

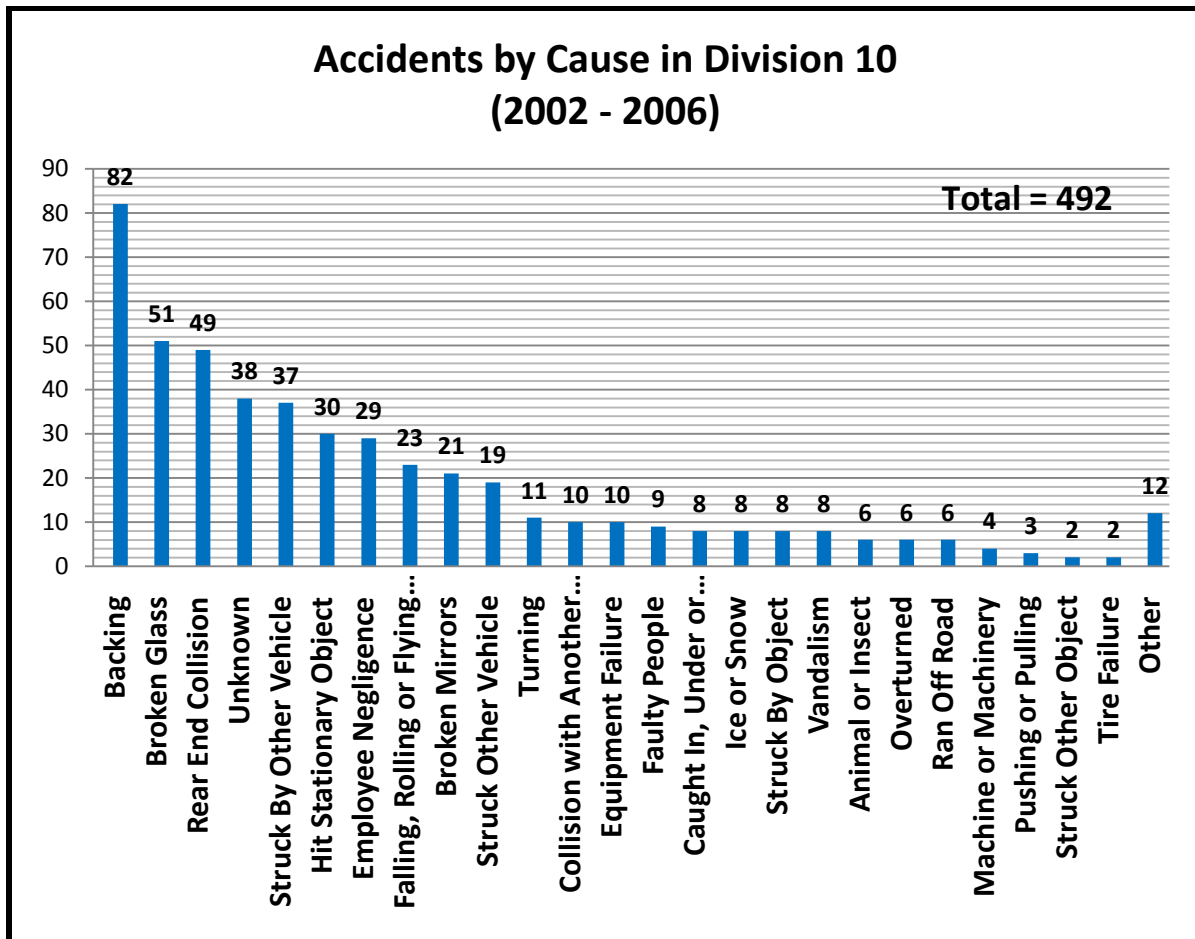
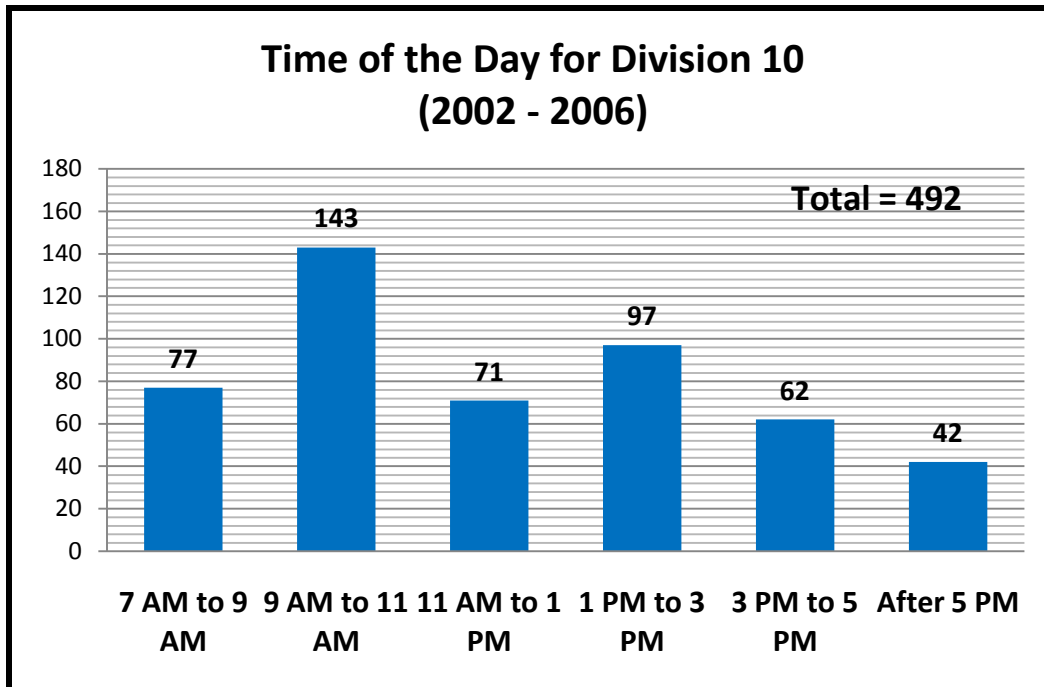


Table below shows causes of accidents listed as “Other.”

Collision with Fixed Object	Motor Vehicle (Hit by)
Dizzy, Fainted, Passed Out	Moving Parts of Machine
Explosion or Flare Back	Object Being Lifted or Handled
Fire or Flame	Pothole
Lifting	Robbery or Criminal Assault
Low Shoulder	Speed

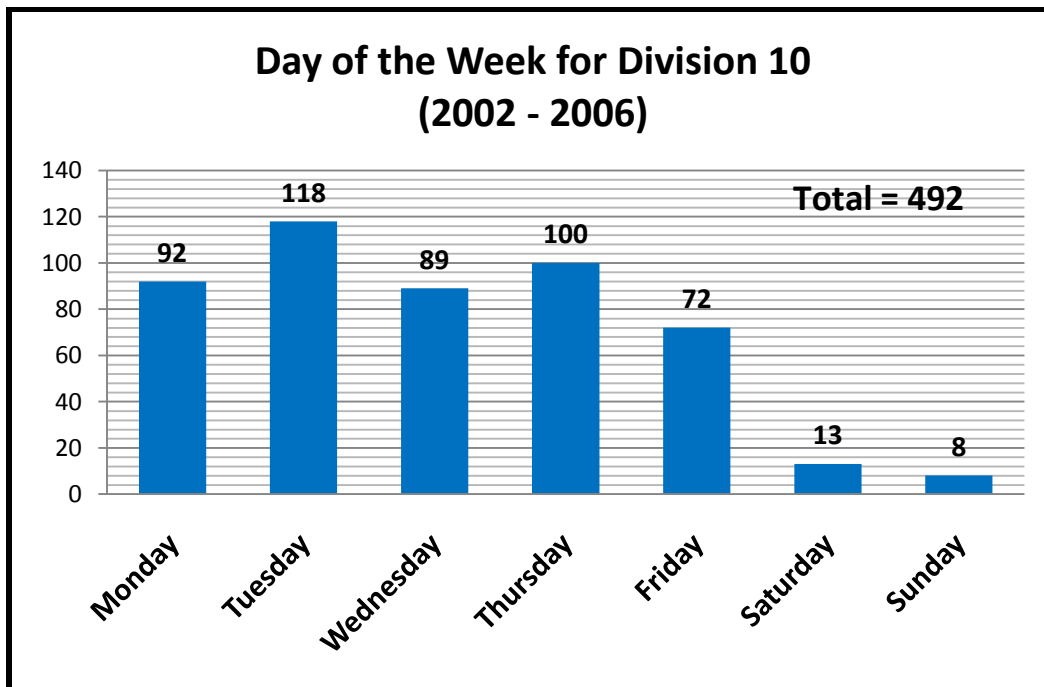
5. Time of the Day

The chart below shows the RISKMASTER data for Division 10 divided into six different time periods. The two time periods with the greatest number accident records were 9 AM to 11 AM with 143 accidents and between 1 PM to 3 PM with 97 records. These time zones are usually during high traffic parts of the day, which is a likely explanation for the increase levels of accidents.



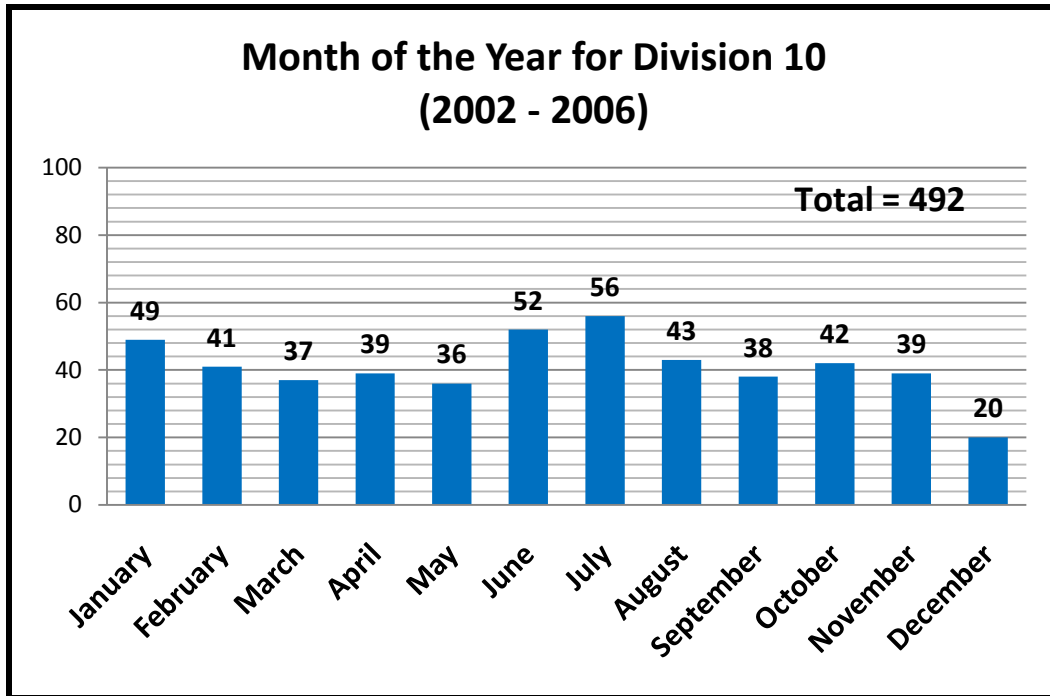
6. Day of the Week

The graph below displays the RISKMASTER data for Division 10 during 2002 to 2006 as a graph broken into days of the week. It indicates that the amount of accident occurrence varied insignificantly with the difference being 46 accidents between Tuesday and Friday. Accidents are less likely to occur during the weekend as can be inferred from the chart.



7. Month of the Year

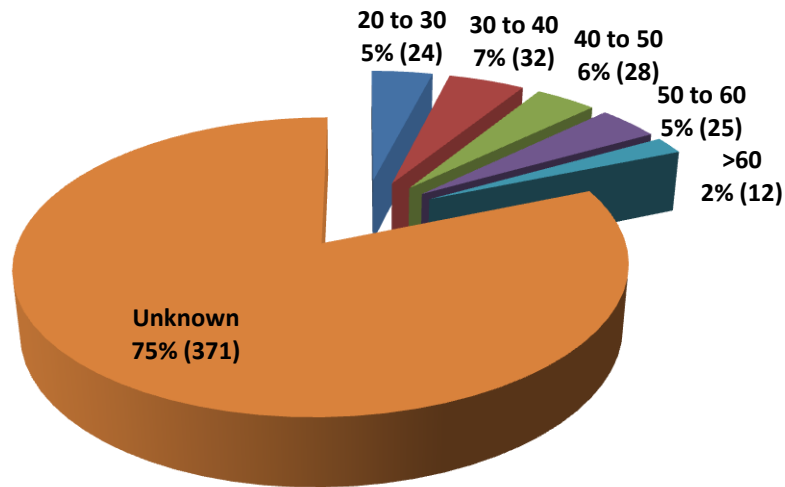
The data is shown by each month of the year. The trend of the graph shows fairly even distribution over the years. There is a slight spike during the summer months (June and July) which may be due the increased number of cars on the road as a result of the warmer weather.



8. Age Group

The chart below shows the accidents in Division 10 broken down into six age groups. The largest portion of the graph is in the “Unknown” category with 75%. This simply means that the age of the person was not recognized clearly. The next age group with the most accidents involvement was the ages between 30 to 40 years old with a total of 32 (5%).

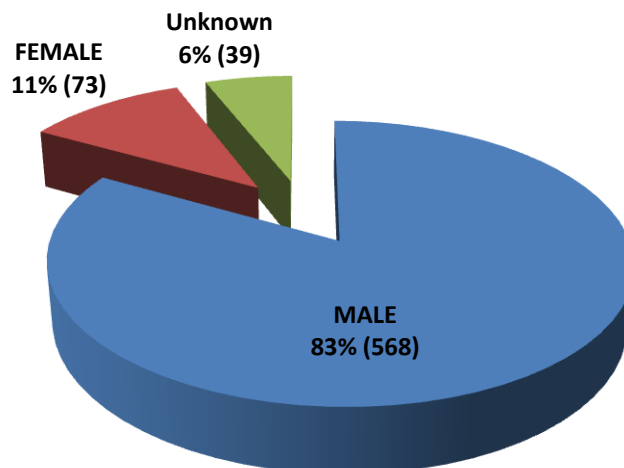
Accidents by Age Group for Division 10 (2002 - 2006)



9. Gender

The chart below shows how the two genders relate in the number of accidents that occurred in Division 10. The chart has three different categories: male, female, and unknown. The male category had the highest value with 83% while the female category had the smallest value of 3%. The data shows that men were at fault the majority of the time, but that may be due to the ratio of men to women operating various machinery and vehicles.

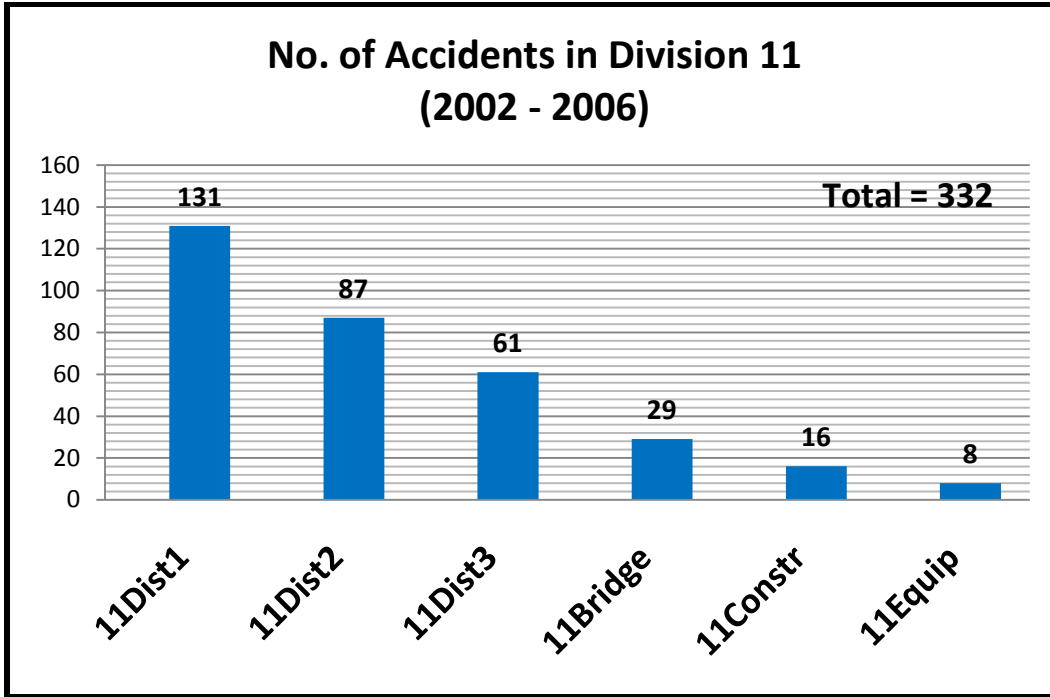
Accidents by Gender for Division 10 (2002 - 2006)



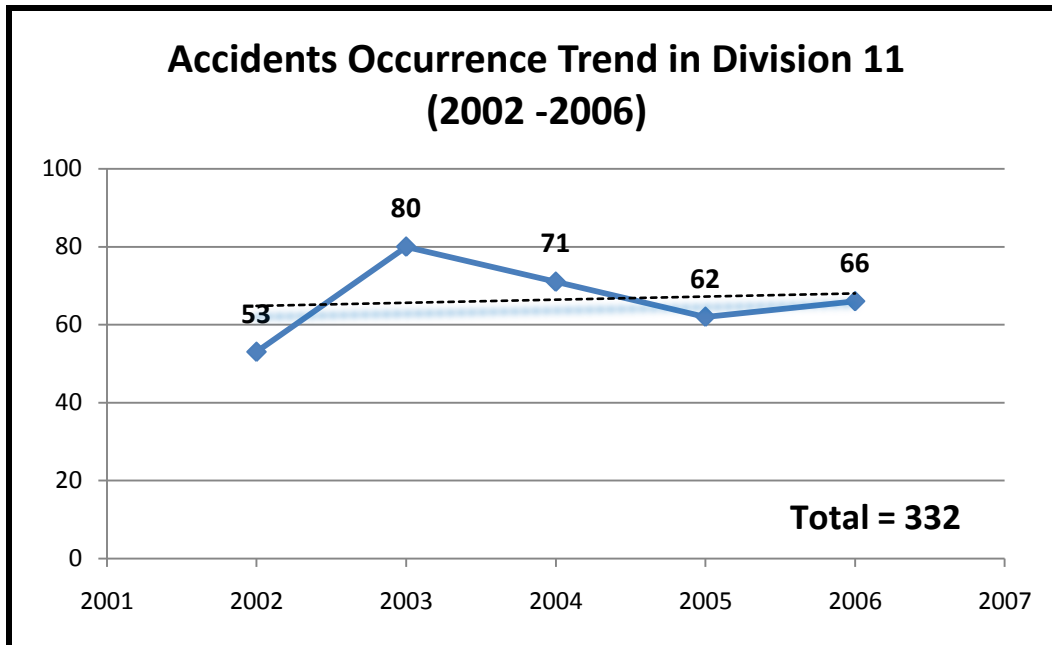
DIVISION 11

1. Number of Accidents

The numbers of accidents in Division 11 from 2002 to 2006 are shown in the graph below. There were a total number of 332 accidents that occurred throughout the study period. According to the RISKMASTER database, the greatest number of accidents was from District 1 with 131 accidents. The graph shows the number of accidents in a descending order.

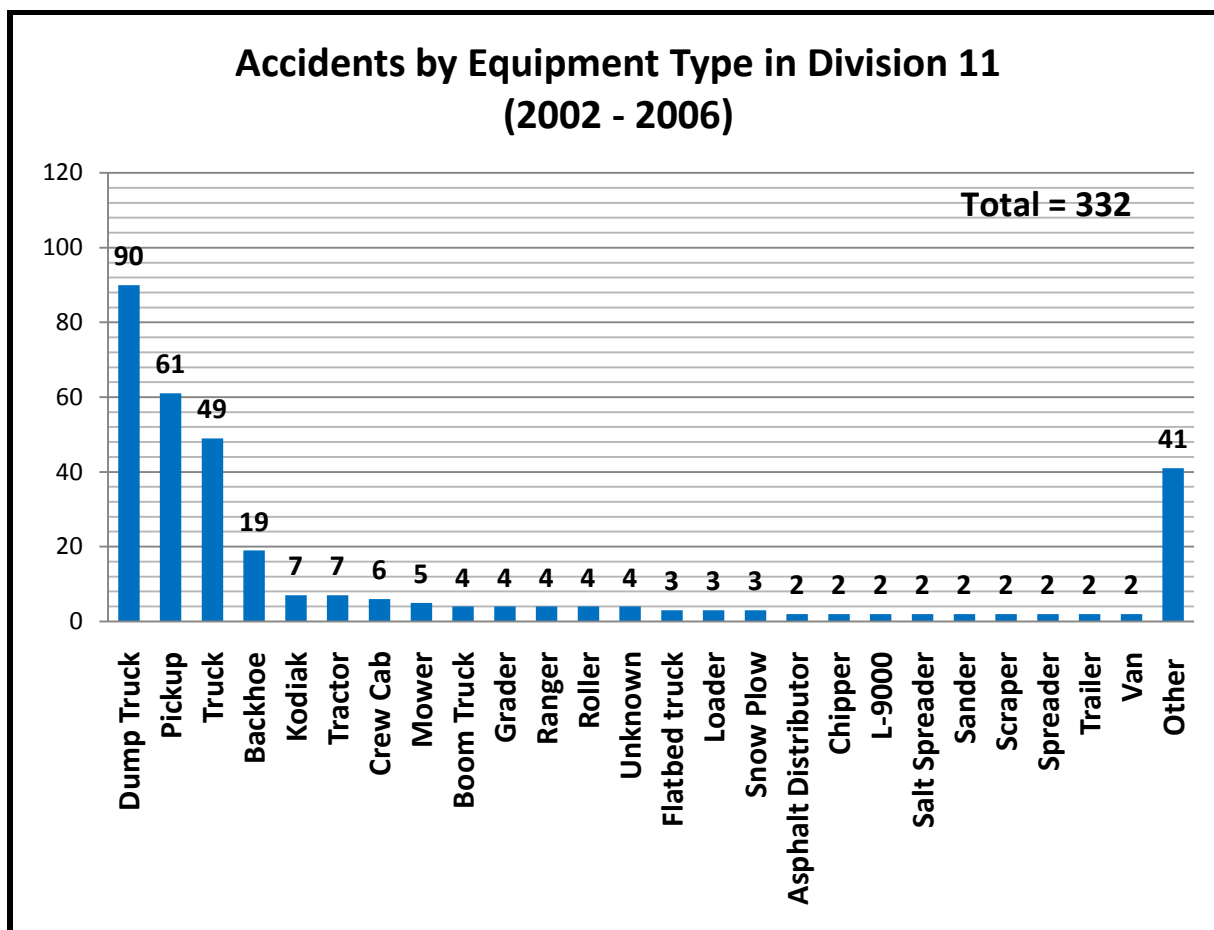


The graph below shows the trend line throughout the years for the number of accidents related to the year. The graph was shows a spike in 2003, where the number of accidents in Division 11 jumped from 53 accidents to 80 accidents. After the increase, the number of accidents has leveled off.



2. Accidents by Equipment Type

The graph below shows the accidents in Division 11 by equipment type. According to the RISKMASTER database, Division 11 had a total of 332 accidents involving different equipment types throughout the study period. “Dump trucks” had the most accidents with 90. “Pickup” trucks and other types of trucks had the next largest with 61 and 49 accidents respectively. The “Other” category also had a significant number with 41 accidents. Some of the “Other” equipment types are listed in the table below. The graph shows the values in a declining fashion.

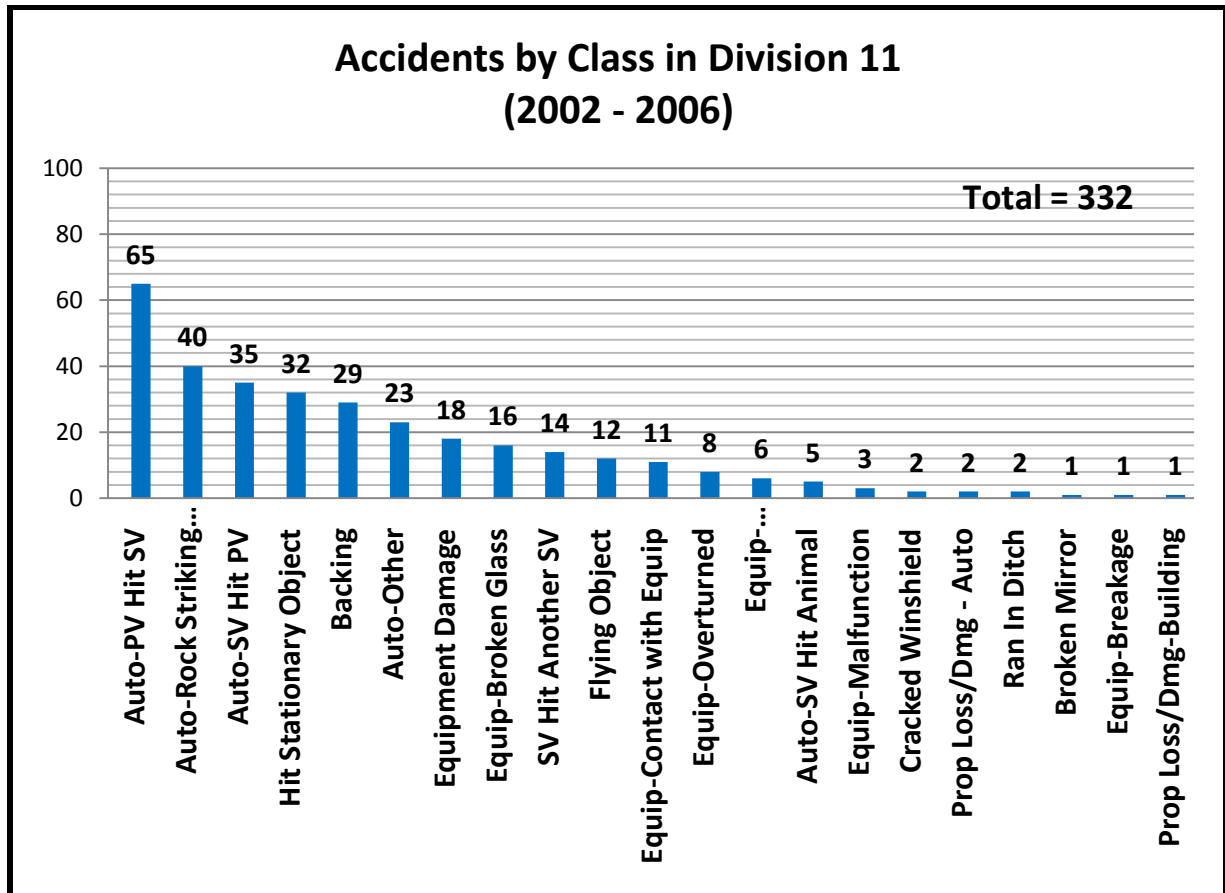


Forty one equipments classified as “Other” are listed below.

2000	Crewcab Pickup	Steel Wheel roller
20 Ton trailer	Distributor Tank	SWB Dump Truck
3/4 ton	Dump Truck/Trailer	Tandem
50,000 lbs.	Excavator	Tandem dump truck
5000GVW	Forester	Tanker
Aerio	Kodiak SWB	Tar Kettle
Asphalt Truck	Lube Truck	Tire Roller
Backhoe loader	Motor Grader	Trackhoe
Broom Tractor	N/A	Tractor Boom
Bucket Truck	Plow	Tractor/Wheel Aboom
Camry	Pole Trailer	Tractor-Trailer
Caravan	Port	Truck (Snow Plow)
Chuck-Chipper	Slag Mower	Wheel Scraper
Concord 4 Door	Squad Truck	

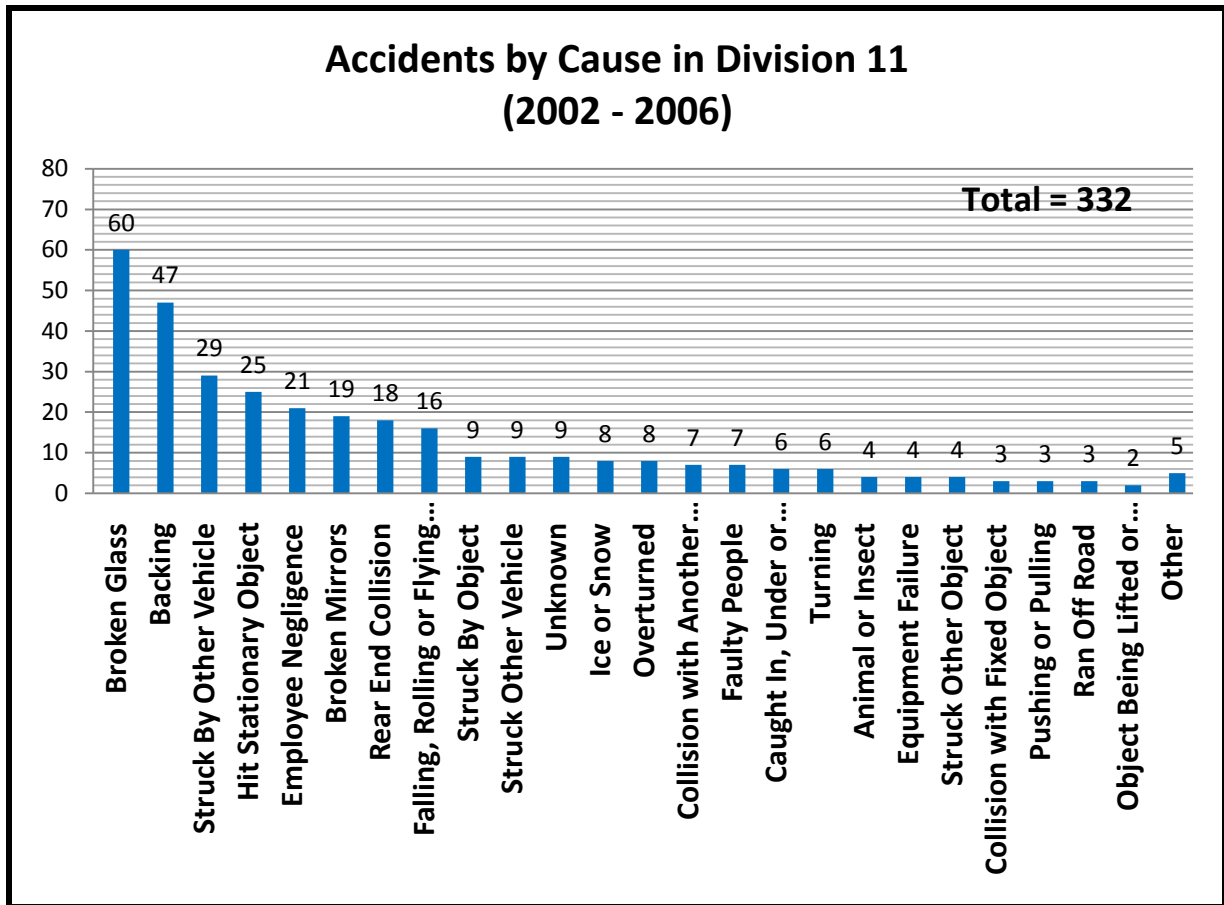
3. Accident by Class

The graph below shows that there were a total of 332 accidents in Division 11. While analyzing data in the accidents by class category in Division 11, “Auto PV hitting SV” accidents had the highest records or 65 (20%). “Rocks hitting the vehicle” were the next greatest value with 40 records. The graph below displays the information in a descending order.



4. Accidents by Cause

The graph below relates the accidents with their causes in Division 11. According to the RISKMASTER database, throughout the study period, the leading causes of accidents were due to “Broken glass” with 60 accidents and “Backing” with 47 accidents. The fewest accidents were caused by “Running off the road” with 3 records and “Object being lifted” with 2 records. The data is displayed in a descending order. The “Other” causes of accidents are listed in the table beneath the graph.

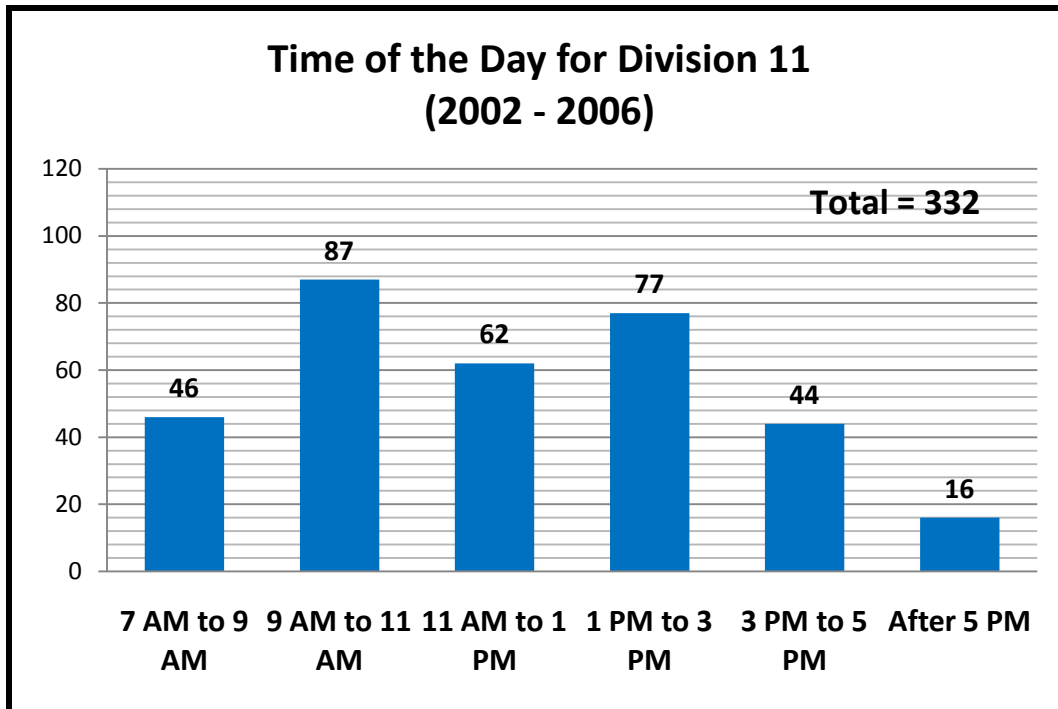


Five causes of accidents classified as “Other” are listed below.

Consumption (Water, Chemical, etc)	Shoveling, Scraping, Sanding, Cleaning
Fire or Flame	Temperature Extremes
Lifting	

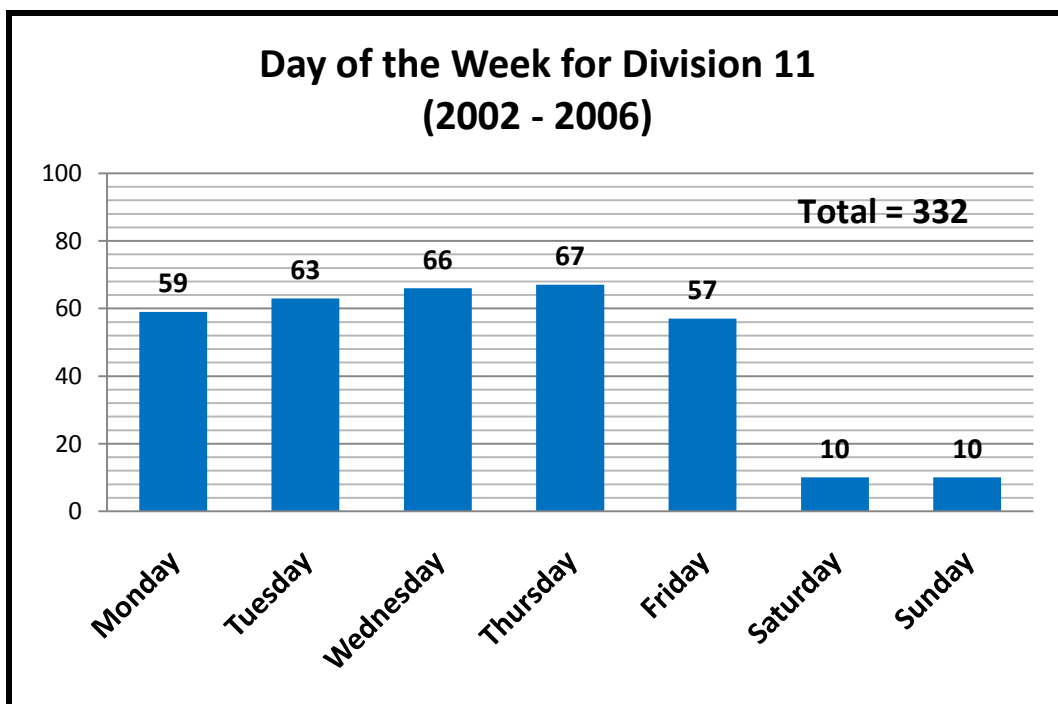
5. Time of the Day

The chart below displays the RISKMASTER data split into various time spans. The two with the largest number of accidents were between 9 AM to 11 AM and 1 PM to 3 PM with 87 accidents and 77 accidents respectively. A logical explanation for the increased amounts of accidents could be due to the higher levels of traffic during these parts of the day.



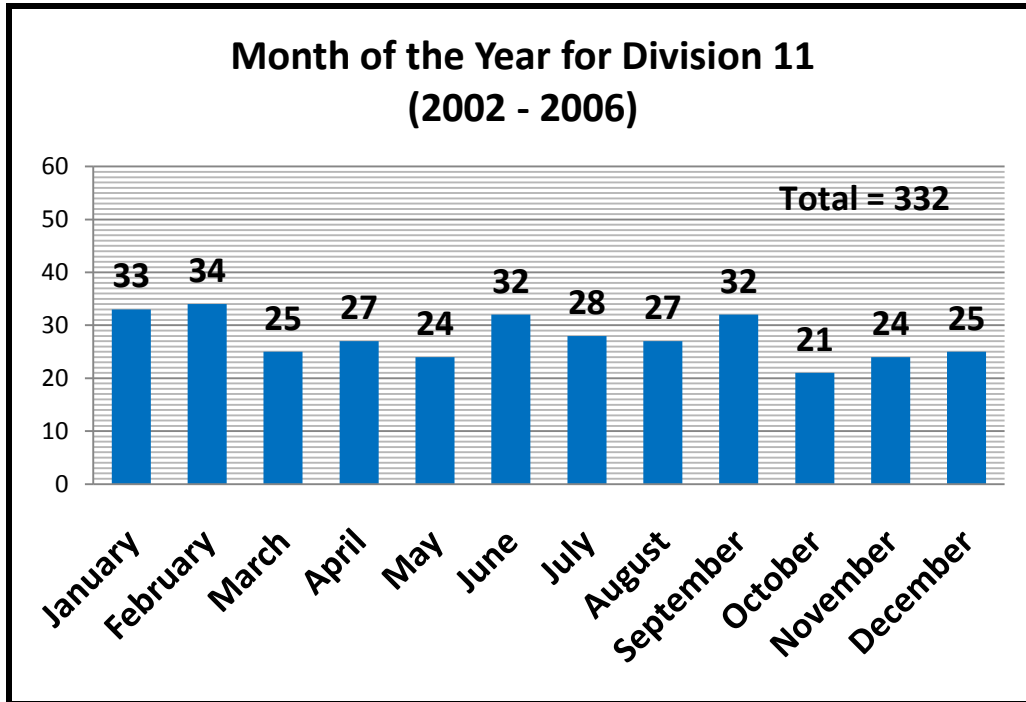
6. Day of the Week

The graph below shows the RISKMASTER data as a graph broken into days of the week. It indicates that throughout the weekdays, the number of accidents in Division 12 remained fairly constant. The number of accidents drastically decreased on the weekends. Thursday was recorded as a day with most accidents occurred.



7. Month of the Year

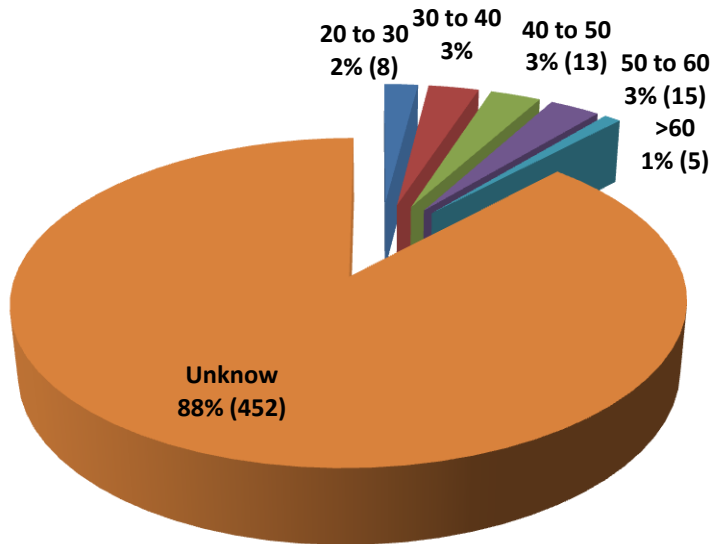
The largest number of accidents occurred during February with 34 total accidents. The least amount of accidents was during the month of October with 21 accidents. The trend line of the graph shows a pretty constant variance. Again, there doesn't seem to be much correlation between the accident occurrence and the month of the year.



8. Age Group

The accidents are displayed in the 6 different age groups. The largest percentage in the chart was claimed by the "Unknown" category with 88%. The second largest was between the ages of 50 to 60 years old and followed by the age group of 40 to 50.

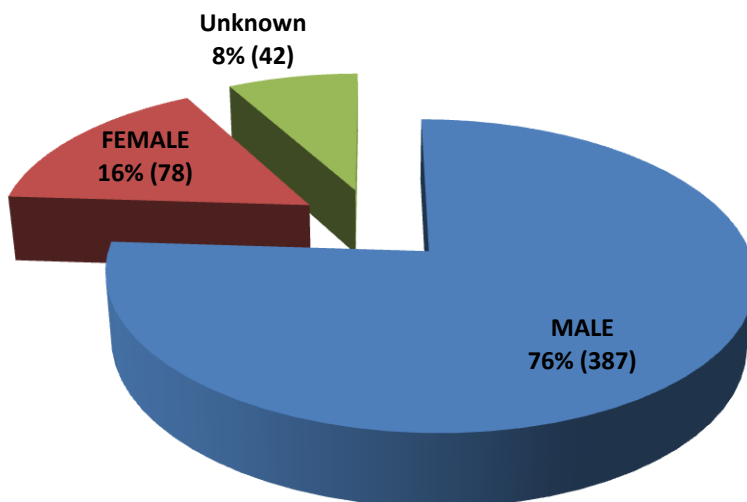
Accidents by Age Group for Division 11 (2002 - 2006)



9. Gender

According to the chart below, the greatest percentage of accidents involved male employees with 76%. Females were involved approximately 16% of the accidents in Division 11. This could be due to a greater male population in the Division 11 workforce.

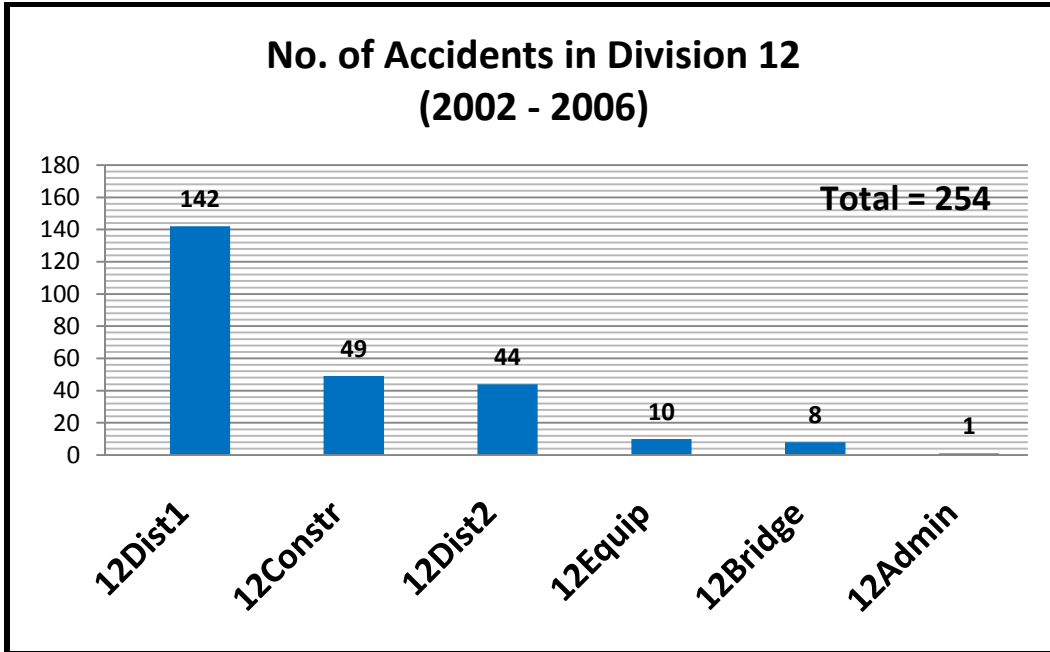
Accidents by Gender for Division 11 (2002 - 2006)



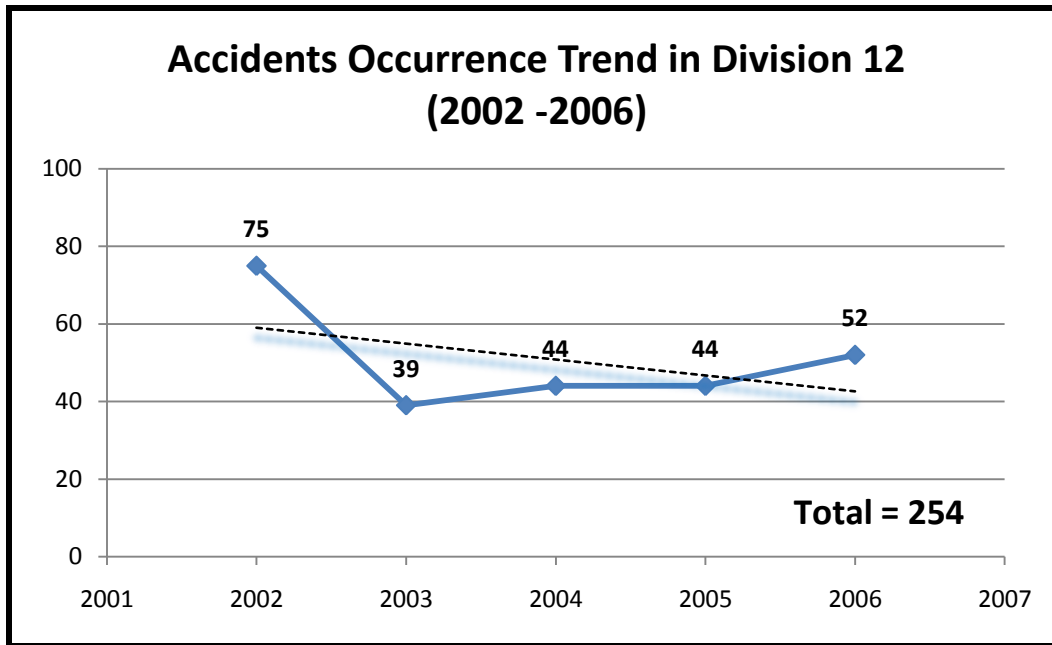
DIVISION 12

1. Number of Accidents

In the graph below, the RISKMASTER data shows the number of accidents in Division 12 from 2002 to 2006. The graph shows the greatest number of accidents occurred in District 1 with 142 accidents. The graph also shows a declining order throughout the districts. There were a total of 254 accidents in Division 12.



The graph below shows the trend line in Division 12 throughout the years for the number of accidents related to each year. The graph indicates a significant decrease from 2002 to 2003, where the number went from 75 accidents in 2002 to 39 accidents in 2003. After this decrease, the numbers have started to settle out.



2. Accidents by Equipment Type

The graph below shows the accidents in Division 12 by equipment type. According to the RISKMASTER database, Division 12 had a total of 254 accidents between 2002 and 2006. The “Pickup” category had the most accidents with 110. The next largest category was the “Other” group with 61 accidents. The “Other” equipment types are listed in the table below. The graph shows the values in a declining fashion.

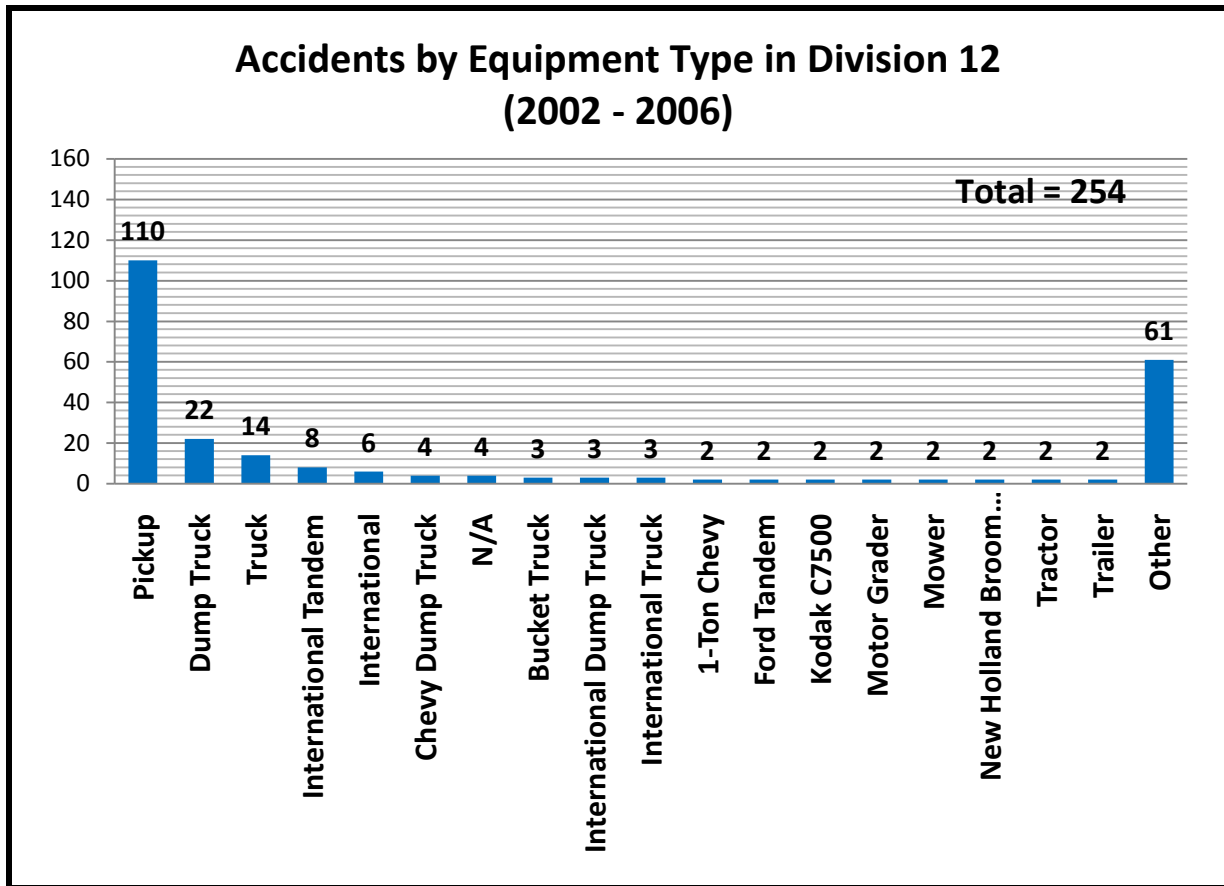
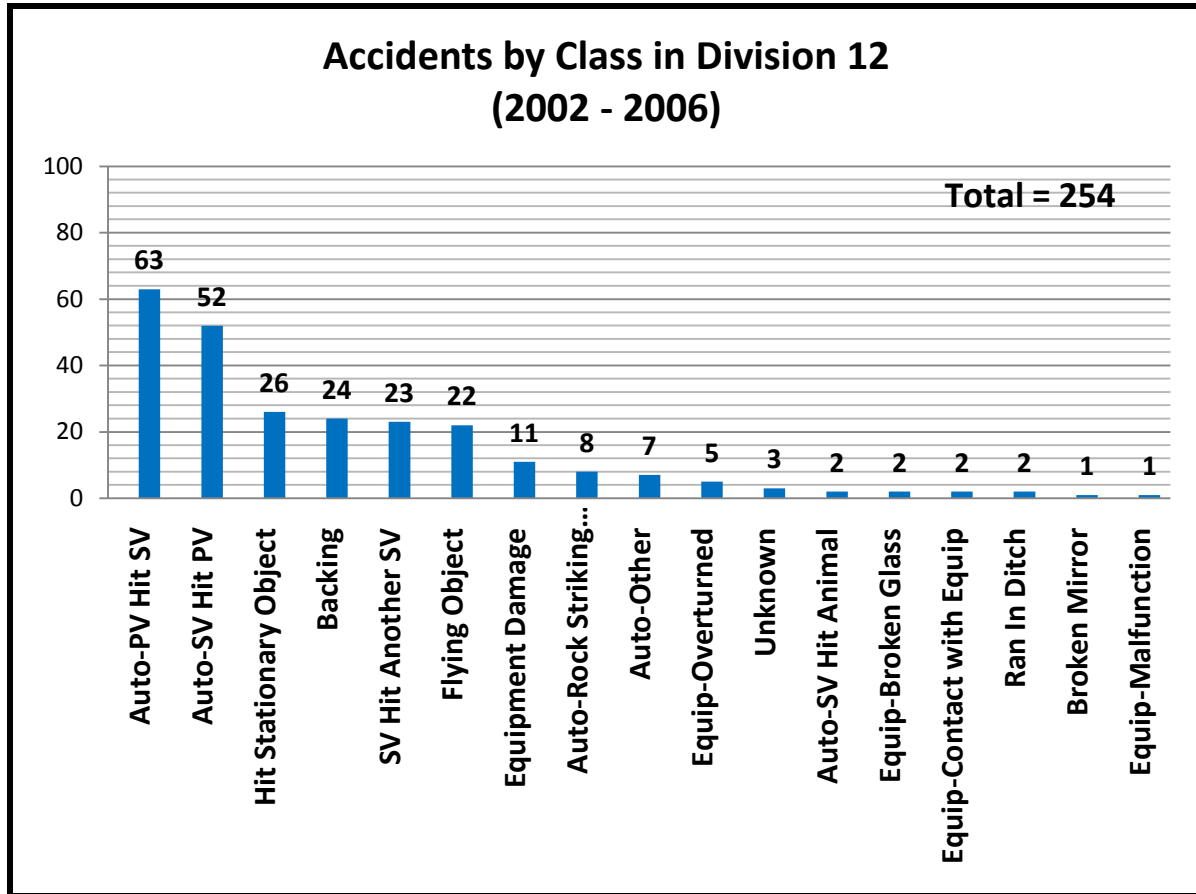


Table below shows different equipment types classified as “Other.”

1995 Chevy Dump Truck	Crew Cab	Kodiak/Isom
20 Ton Trailer	Crew Cab Truck	Mack
A-Boom	Cross Sprayer	Mack Tandem Dump
Alamo Boom	Custom Trailer 12-ton	Mack Truck
Asphalt Tank	Dodge Van	Mara Tar Kettle
Backhoe	Dozer	NH Tractor, Wheel 110 HP
Backhoe/loader	Epoke Spreader	Nissan
Blazer	Ford Ranger	Plymouth Breeze
BNDT, Brush Chipper	Ford Taurus LX	Snow Plow
Body Spreader	Ford truck with dump	Spencer Harris (Low Bed)
Broom Tractor	Ford Utility Truck	Spray Rig
Bus	Grader	Suburban Carryall
Car	Hyundai Loader	Tar Kettle
Case Backhoe	International 4700 4 x 2	Trailer/Backhoe
Case Backhoe/FE Loader	International Bus	Trailer-EZE
Chevrolet 15,000 GVW	International Truck 50,000 GVW	Utility Truck
Chevrolet 2500	Jeep Cherokee	Valk Plow
Chevrolet Blazer	Jeep Liberty	Van
Chevy Bucket Truct	John Deer 850B Dozer	Volvo GMC
Chevy Crew Cab	John Deere 6300	Volvo Grader
Chevy S-10 Blazer		

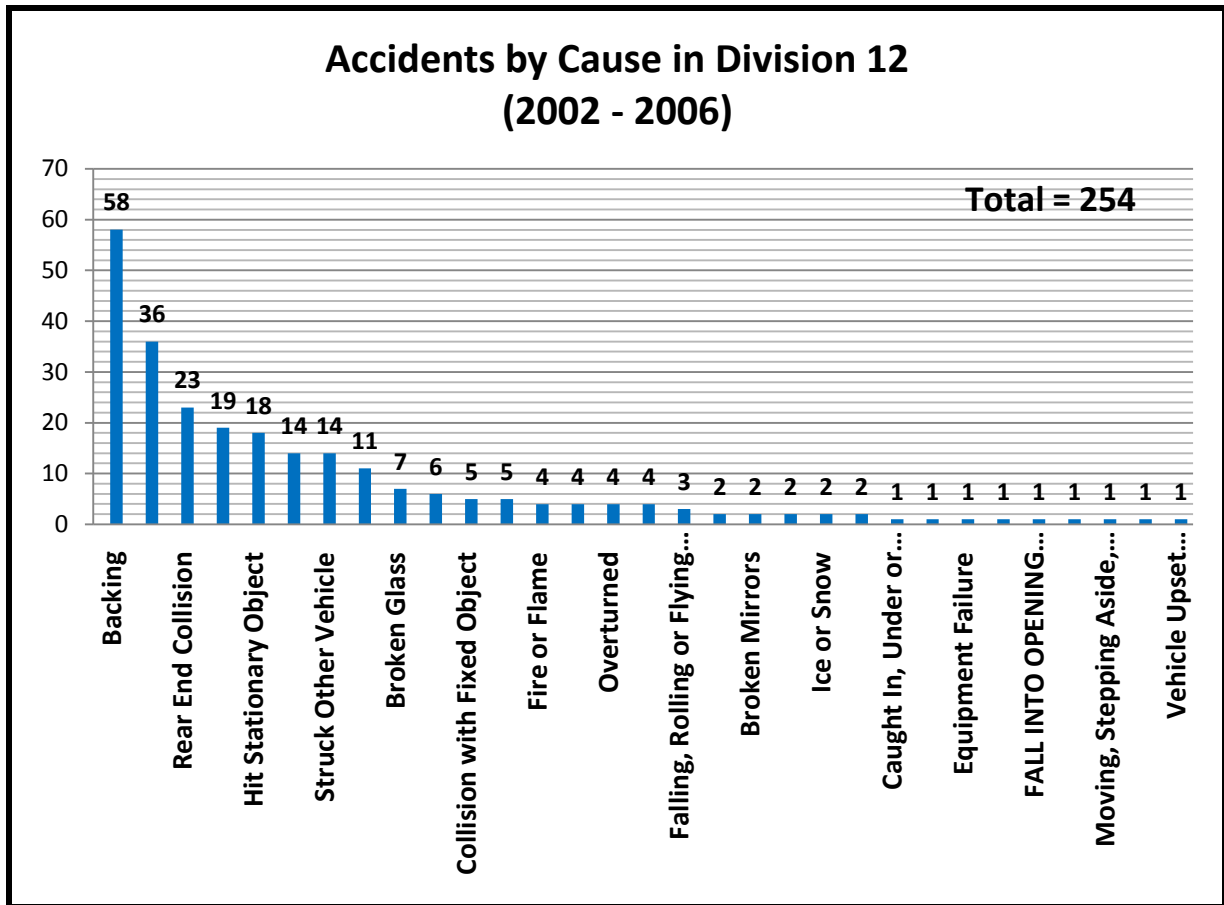
3. Accident by Class

The graph below indicates that there were a total of 254 accidents in Division 12 during 2002 to 2006. By analyzing data in the accidents by class category of Division 12, “Auto PV hitting SV” accidents had the highest records or 63 (25%). “Auto SV hitting PV” was second with 52 records. The graph below displays the information in a decreasing order.



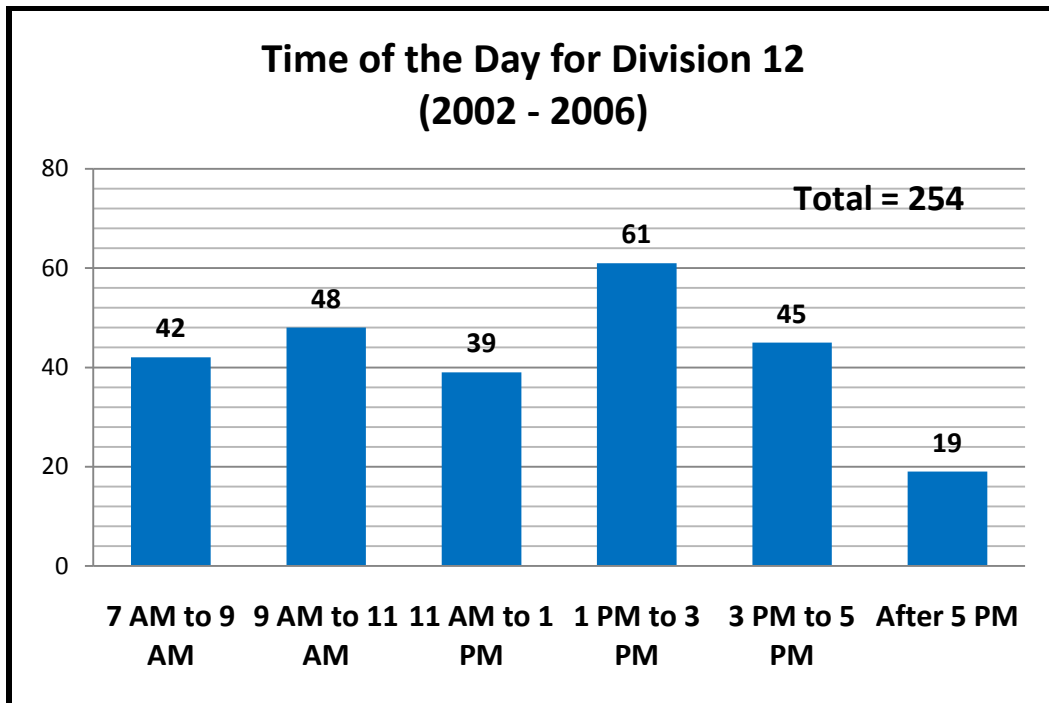
4. Accidents by Cause

The graph below relates the accidents with their causes in Division 12. According to the RISKMASTER database, throughout the study period, the leading causes of accidents were due to “Backing” with 58 (23%) accidents and “Rear end collision” which had 36 accidents. The fewest accidents were caused by “Moving/stepping aside” and “Vehicle upset” with 1 accident a piece. The data is displayed in a descending order.



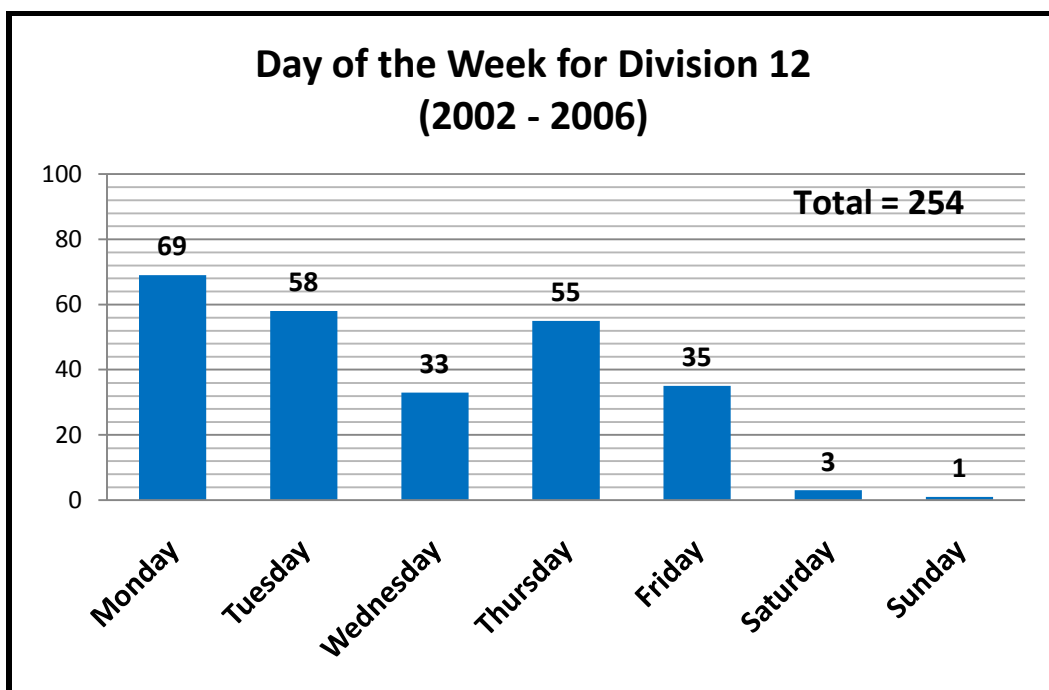
5. Time of the Day

The chart below displays the data for Division 12 during 2002 to 2006 split into various time spans. Most accidents occurred during the time span between 1 PM to 3 PM with 61 records. Note that a total of 19 accidents occurred after 5 PM and before 7 AM the following morning.



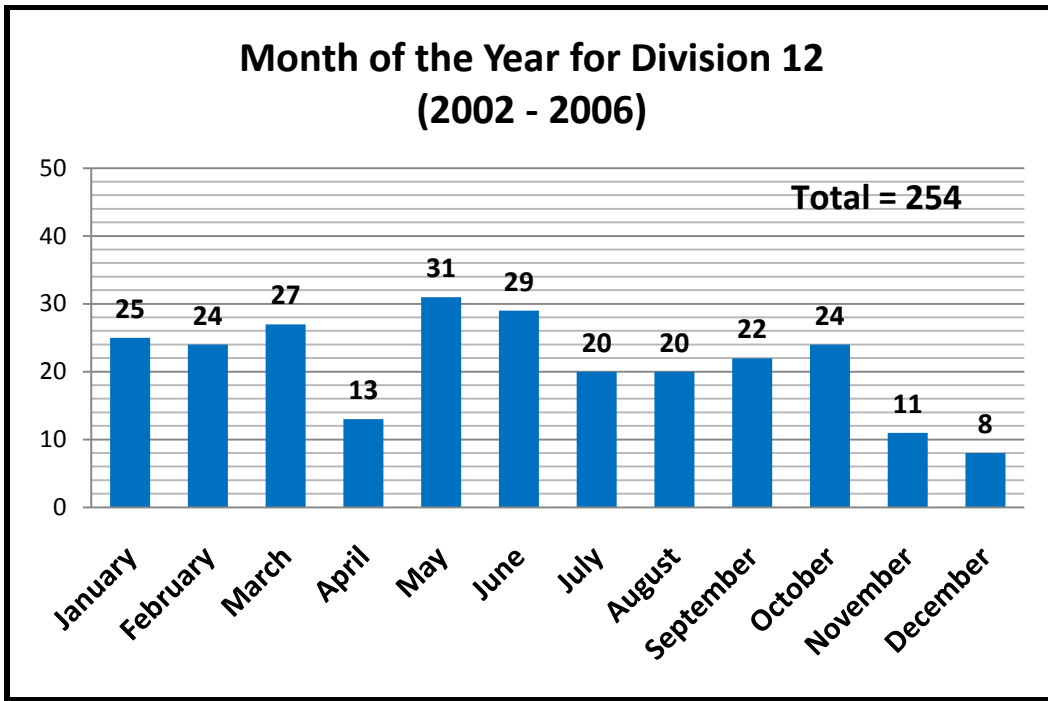
6. Day of the Week

The graph below shows the RISKMASTER data as a graph broken into days of the week. It indicates some fluctuations in the number of accidents occurred during the weekdays. Wednesday and Friday recorded lower accidents compared to the rest of the weekdays. The number of accidents decreased significantly on the weekends. The highest day of accidents occurrence in Division 12 is Monday with a total of 69.



7. Month of the Year

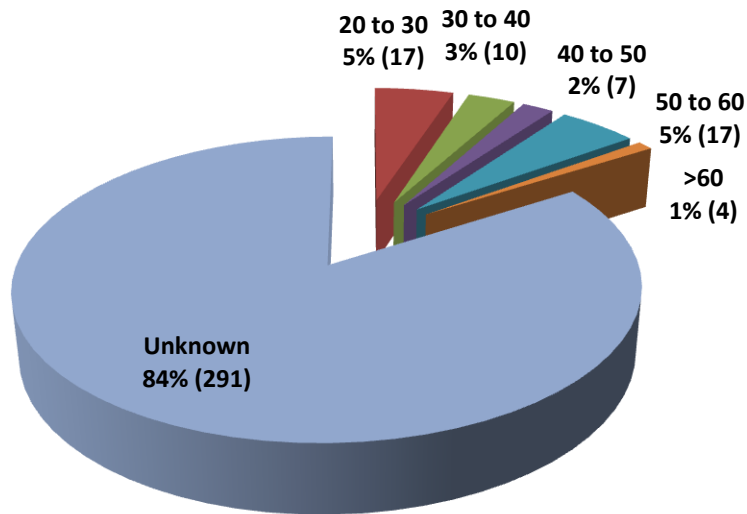
The data is shown by each month of the year. The trend of the graph shows fairly even distribution over the years except for the month of April with 13 accidents. There is a slight spike during the early summer months (May and June) and the lower occurrence rate during the winter months of November and December.



8. Age Group

The numbers of accidents occurrence are displayed per the 6 different age groups as shown below. The largest percentage in the chart was claimed by the “Unknown” category with 84%. Accidents occurred relatively evenly among different age groups with the variation of 10 counts (excluding the age group greater than 60).

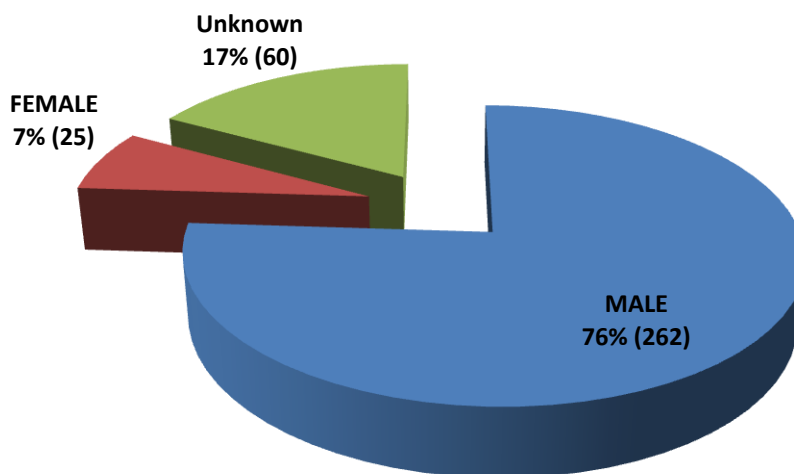
Accidents by Age Group for Division 12 (2002 - 2006)



9. Gender

In Division 12, men were involved in 76% of the accidents (total of 262), while women were involved in 7%, (25). 17% were recorded without clear gender information.

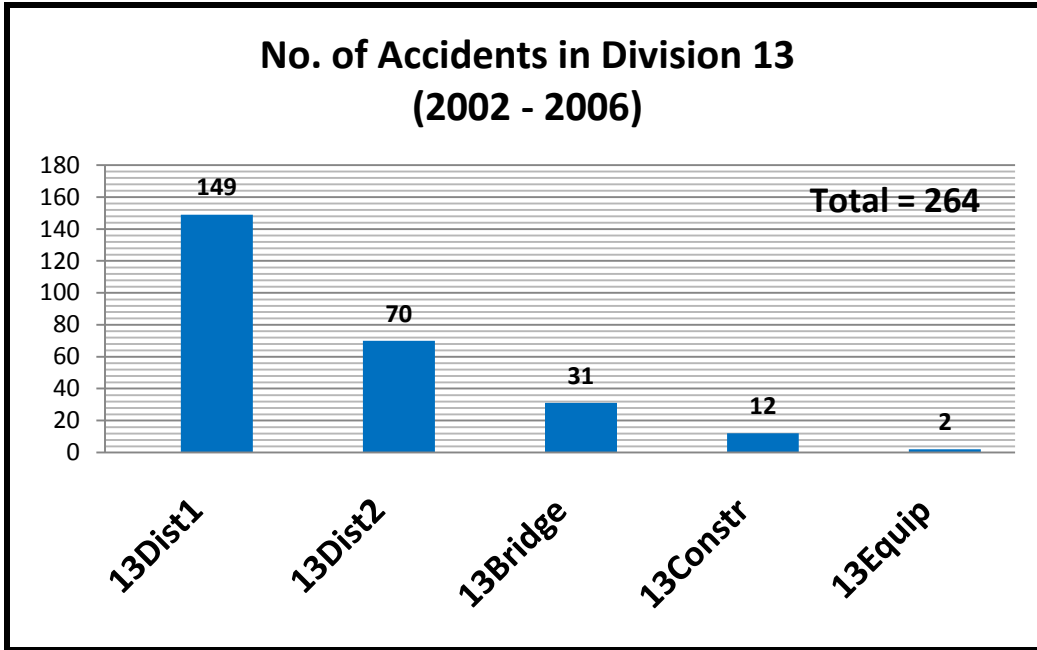
Accidents by Gender for Division 12 (2002 - 2006)



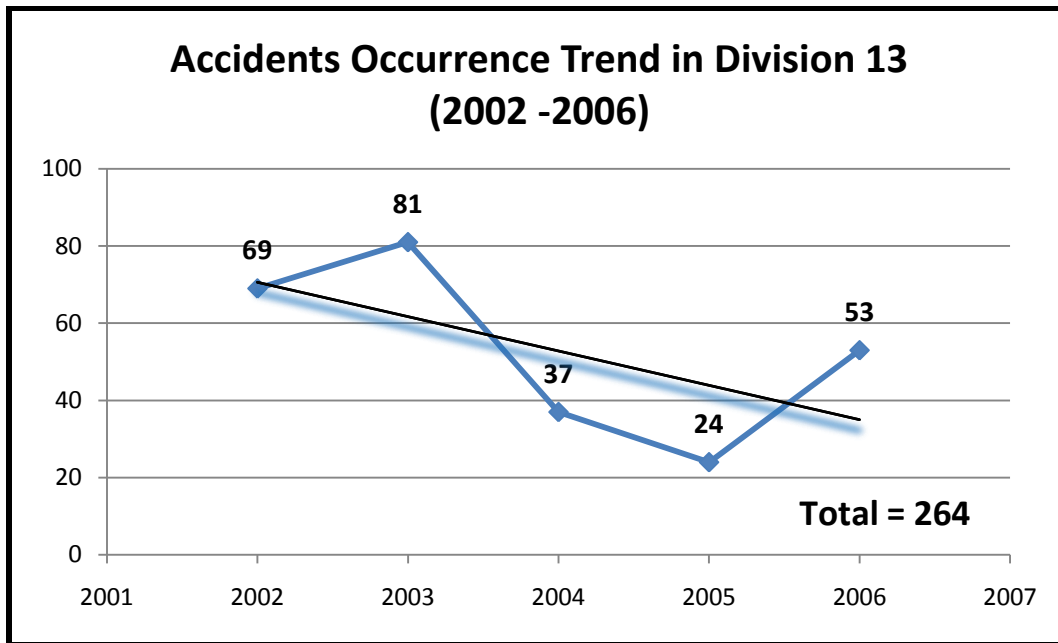
DIVISION 13

1. Number of Accidents

The numbers of accidents in Division 13 from 2002 to 2006 are shown in the graph below. According to the RISKMASTER database, the greatest number of accidents occurred in District 1 with 149 accidents. The graph shows a descending order over the districts and operating units. There were a total of 264 total accidents occurred in Division 13.

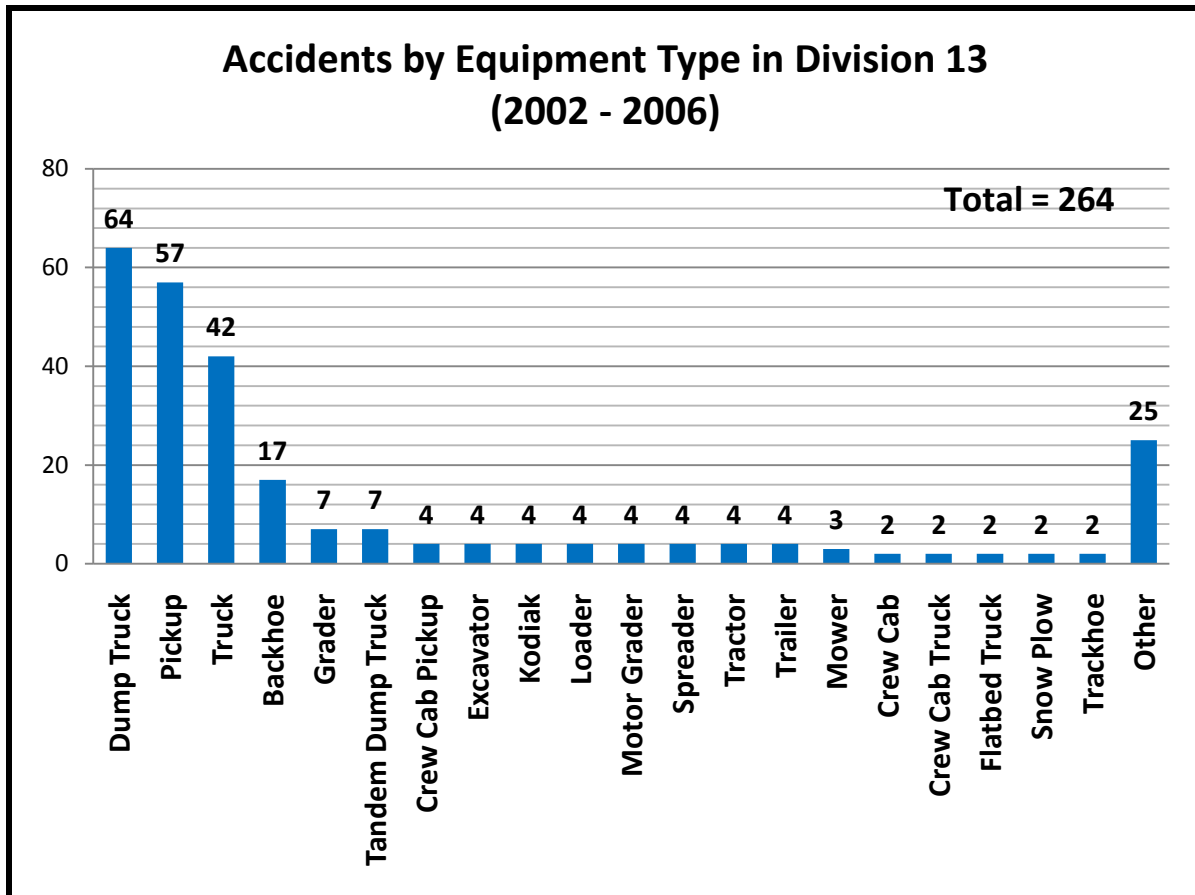


The graph below shows the trend line throughout the years for the number of accidents related to the year. The graph for Division 13 was showing an increase between the years 2002 to 2003, but the number dropped significantly in 2004. The number went from 81 accidents in 2003 to 37 accidents in 2004. The trend continued to decrease until 2005, however it showed another increase in 2006.



2. Accidents by Equipment Type

According to the RISKMASTER database, Division 13 had a total of 264 accidents by different equipment types occurred during the period of 2002 to 2006. “Dump trucks” had the most accidents with 64. “Pickup” trucks and other types of trucks followed close behind with 57 and 42 accidents respectively. The “Other” category also had a significant number with 25 accidents. The “Other” equipment types can be found in the table below the graph. The graph shows the values in a declining fashion.

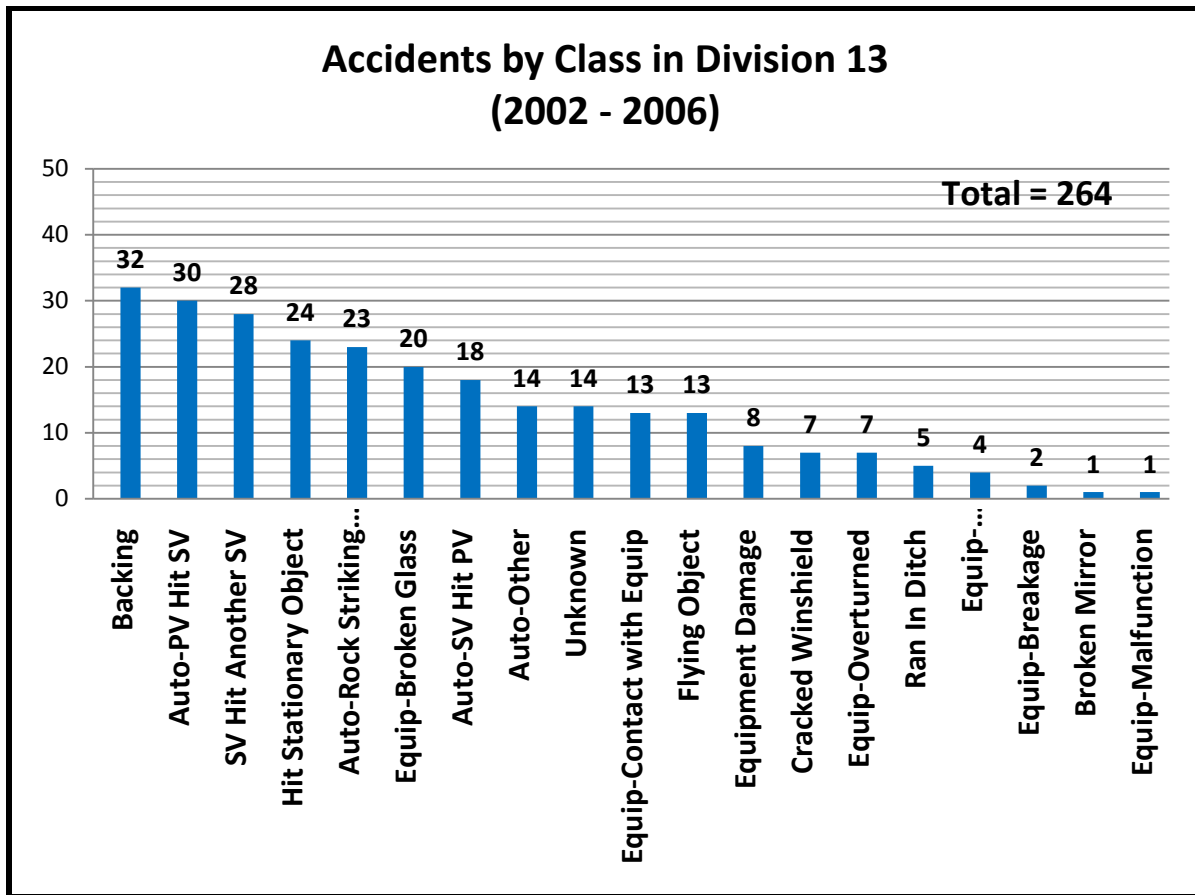


The table below shows different equipment types classified as “Other.”

2500 PICKUP	Car	Pole Trailer
Aggregate Spreader	Carryall	Suburban
Asphalt Roller	Chipper	Tilt Trailer
Bandit Chipper	Clubwagon	Tractor Mower
Blazer	Extended Cab Pickup	Utility Trailer
Board	Longarm Mower	Van
Boom Truck	Machine	Welder/Generator
Broom mower	Plow	Wrecker
Bucket truck		

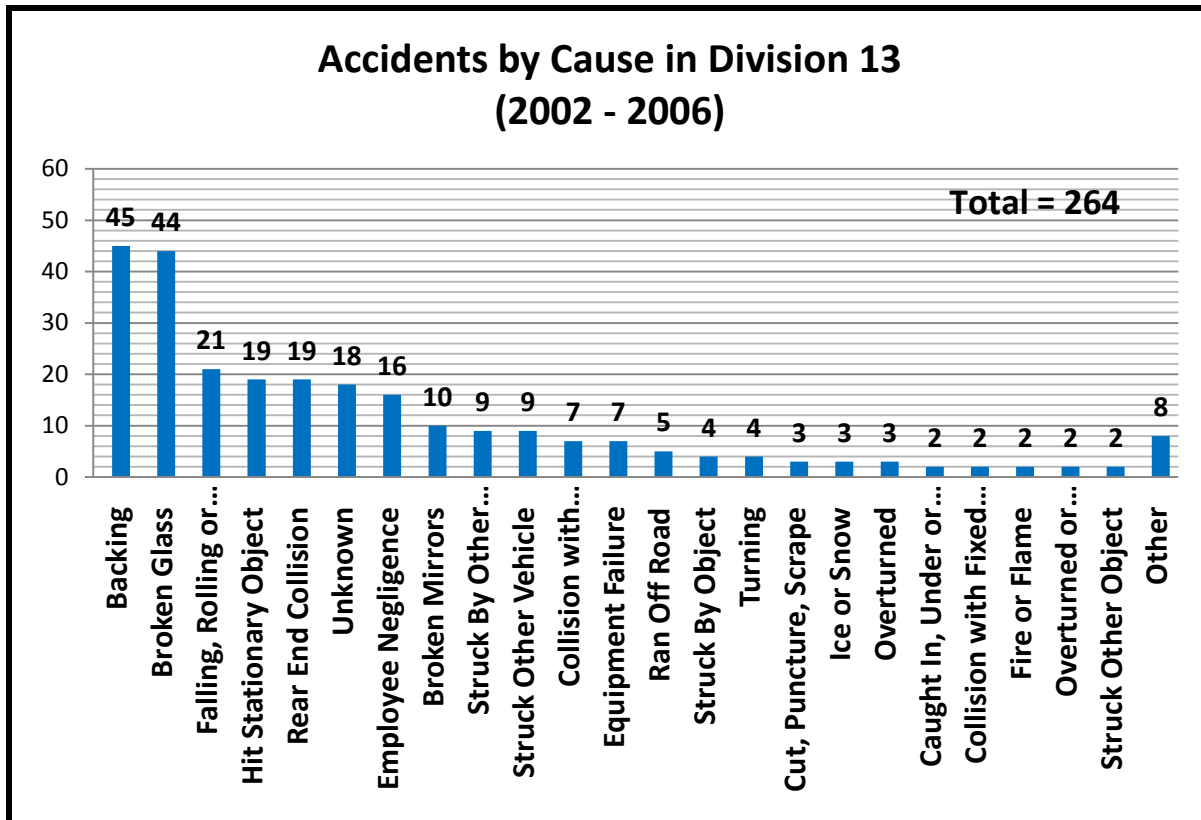
3. Accident by Class

Through analyzing the data in the accidents by class category of Division 13, “Backing” had the greatest amount of records with 32. The second that was close behind was “Auto PV hitting SV” accidents with 30 records. The graph below displays the information in a descending order.



4. Accidents by Cause

According to the RISKMASTER database, in Division 13, the leading cause of accidents was due to “Backing” with 45 accidents, followed closely by “Broken glass” with 44 accidents. The fewest accidents were caused by several causes as shown on the chart with the count of 2 records. The “Other” causes of accidents are listed in the table beneath the graph. The data is displayed in a descending order.

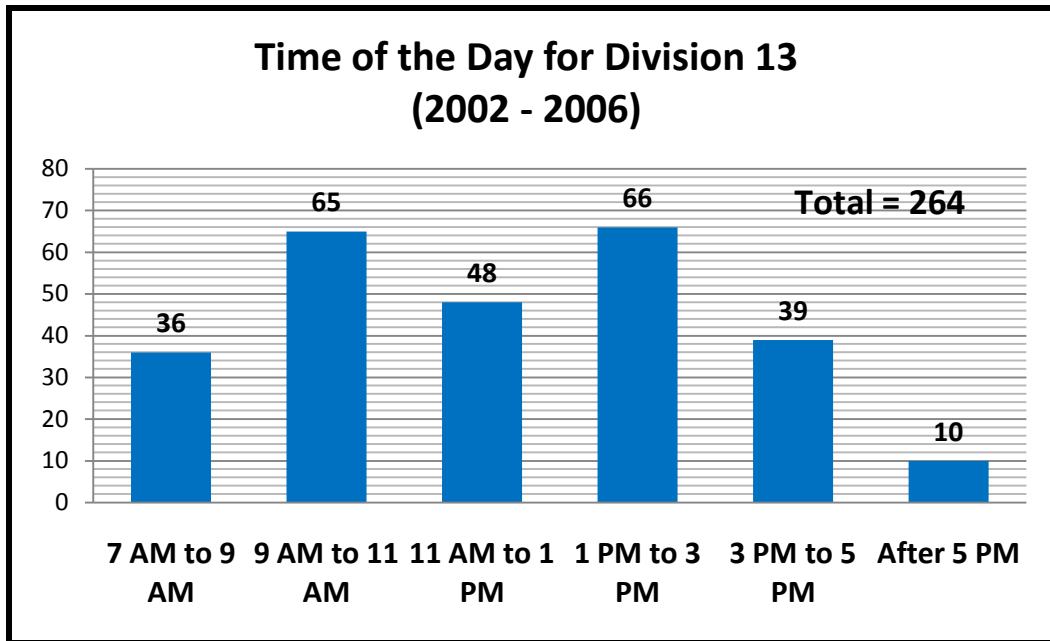


Eight other causes of accidents listed as “Other.”

Contact with Electrical Current	Pushing or Pulling
Faulty People	Shoveling, Scraping, Sanding, Cleaning
Lifting	Speed
Moving Parts of Machine	Temperature Extremes

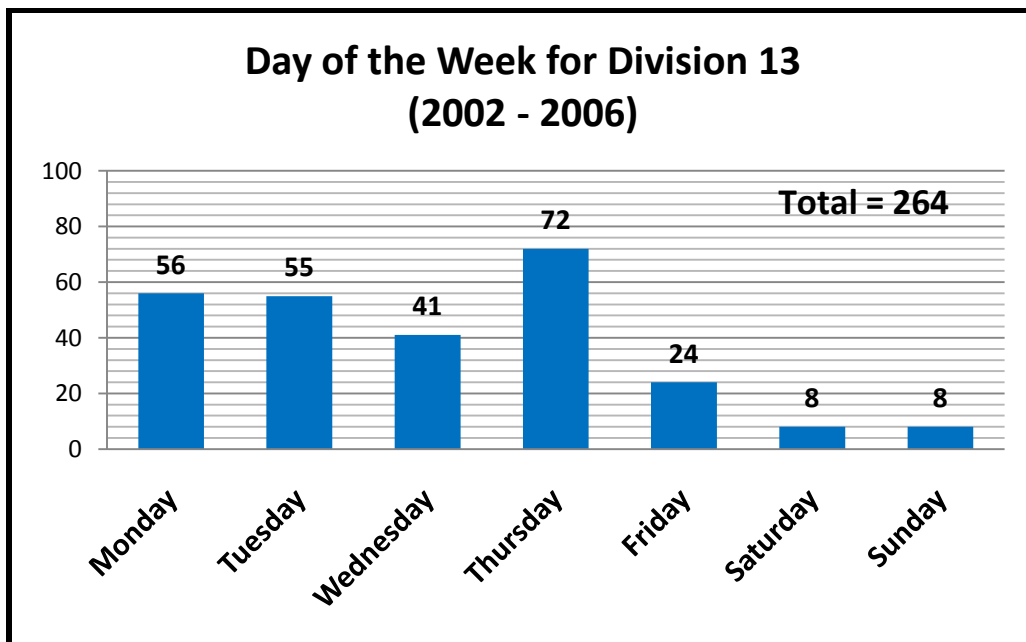
5. Time of the Day

The chart below displays the RISKMASTER data for Division 13 during 2002 to 2006 split into various time spans. The two with the most accidents were between 1 PM to 3 PM with 66 accidents and between 9 AM to 11 AM with 65 accidents. A reason for this spike in accidents during the time spans is very likely to be related with the amount of vehicles on the road.



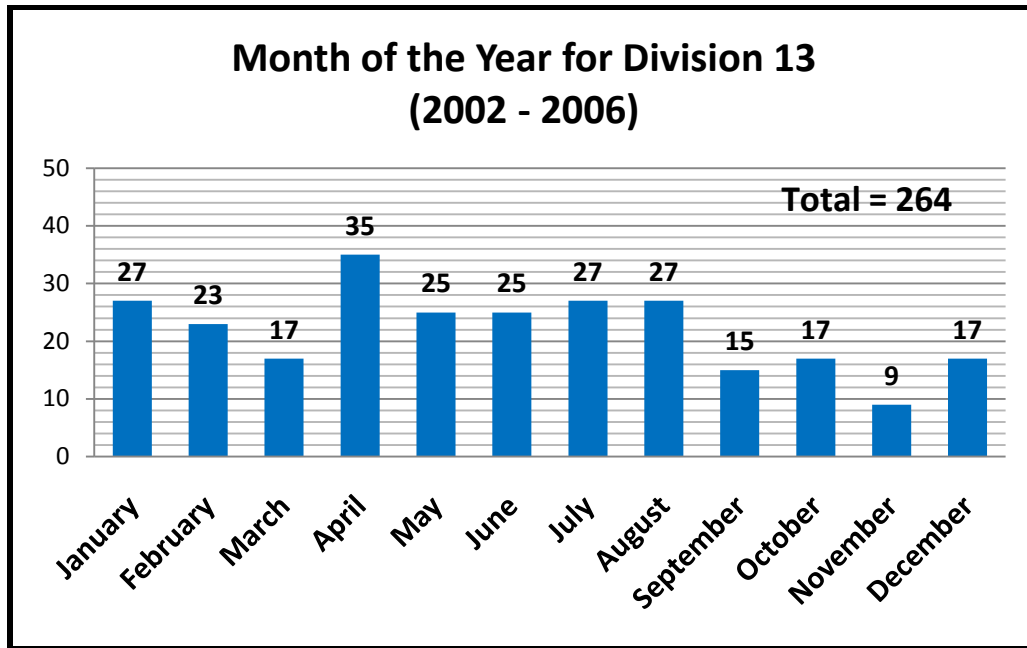
6. Day of the Week

The graph below shows the RISKMASTER data as a graph broken into days of the week. It indicates that the numbers of accident increased significantly on Thursday with a total of 72 and diminished towards the weekends.



7. Month of the Year

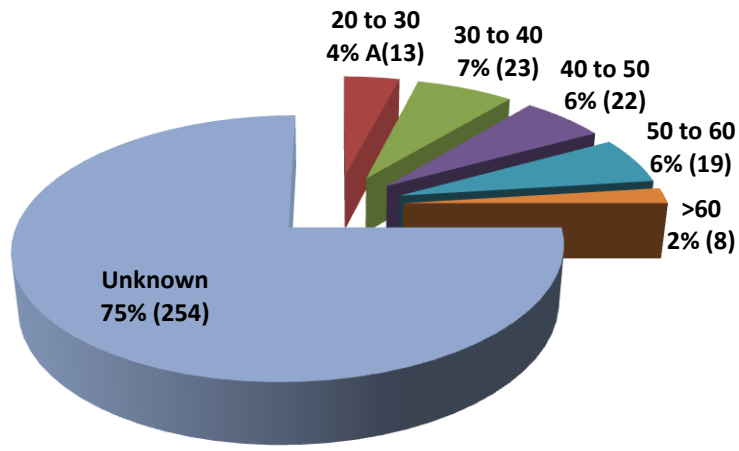
The data below shows a fairly even spread of the number of accidents related to the month except for the months of March and April. From April to August, the data displays that there were a total of 139 accidents (53%) within these five months, while during the other seven months there were only 125 accidents. The month November had the least amount of accidents with a value of 9.



8. Age Group

Throughout the years of 2002 to 2006, the number of accidents in Division 13 has been broken down into various age groups. The greater that 60 years old age group had the least amount of accidents with 2%, followed by the age group between 20 to 30 with 4%. The greatest number of accidents occurred in the unknown age category with a percentage of 75%, followed by 7% in the 30 to 40 year old class. Again, there seems a problem with inaccurate data entry at the time of accident reporting.

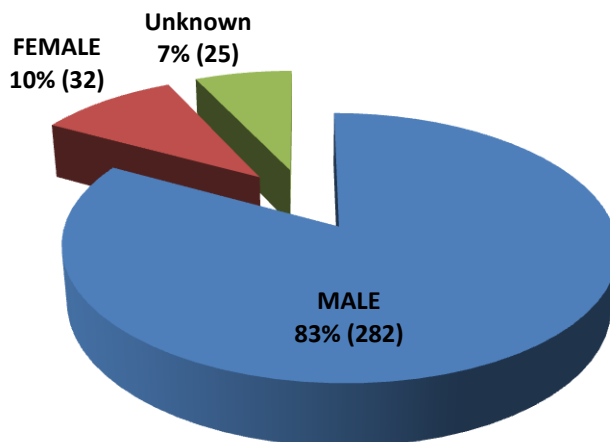
Acciednts by Age Group for Division 13 (2002 - 2006)



9. Gender

The chart below shows how the two genders relate in the number of accidents that occurred in Division 13. The male category had the highest value with 83%, while the female category had the smaller value of 10%. The data shows that men were at fault the majority of the time, but that may be due to the ratio of men to women operating various machinery and vehicles.

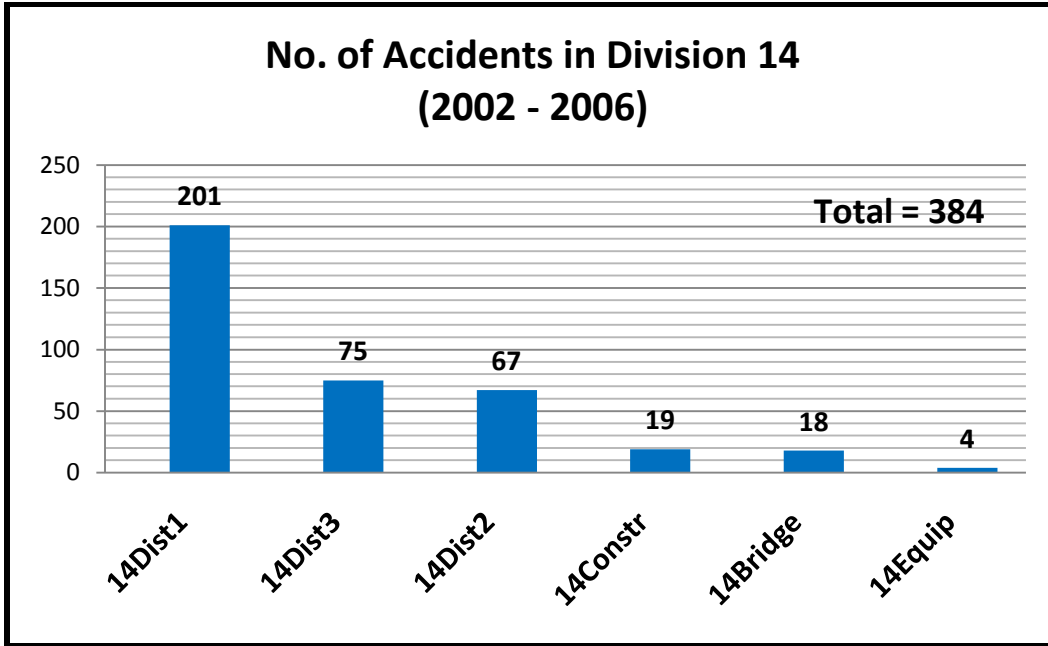
Accidents by Gender for Division 13 (2002 - 2006)



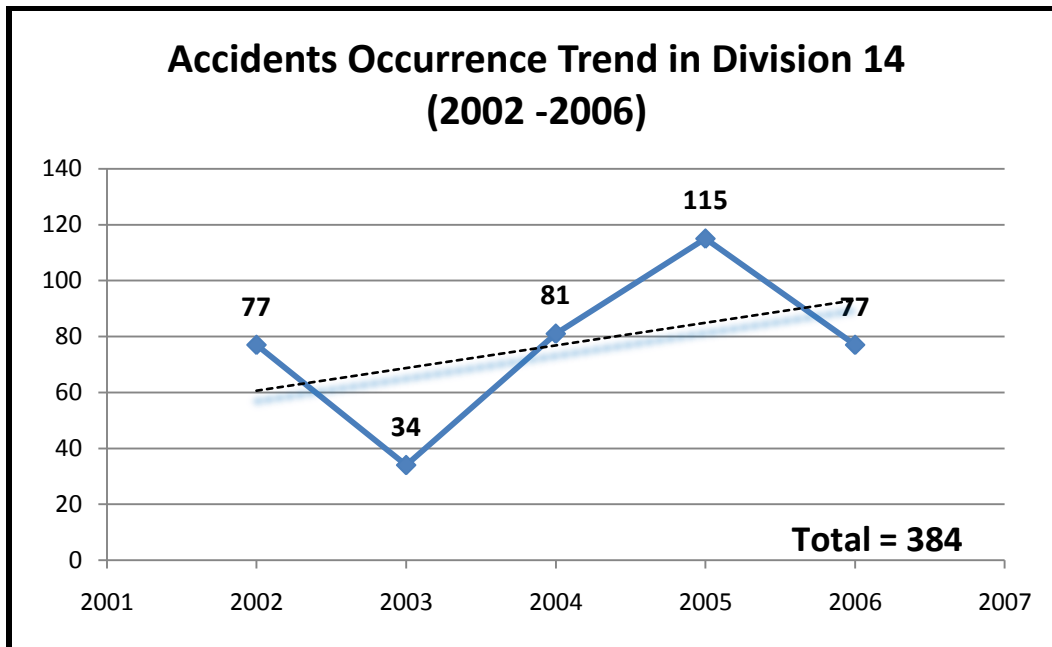
DIVISION 14

1. Number of Accidents

The graph below presents number of accidents in Division 14 from 2002 to 2006. According to the RISKMASTER database the greatest number of accidents occurred in District 1 with 201 accidents. There were a total of 384 accidents in Division 14 and District 1 had over 50% of them. The graph shows a descending trend throughout the districts.

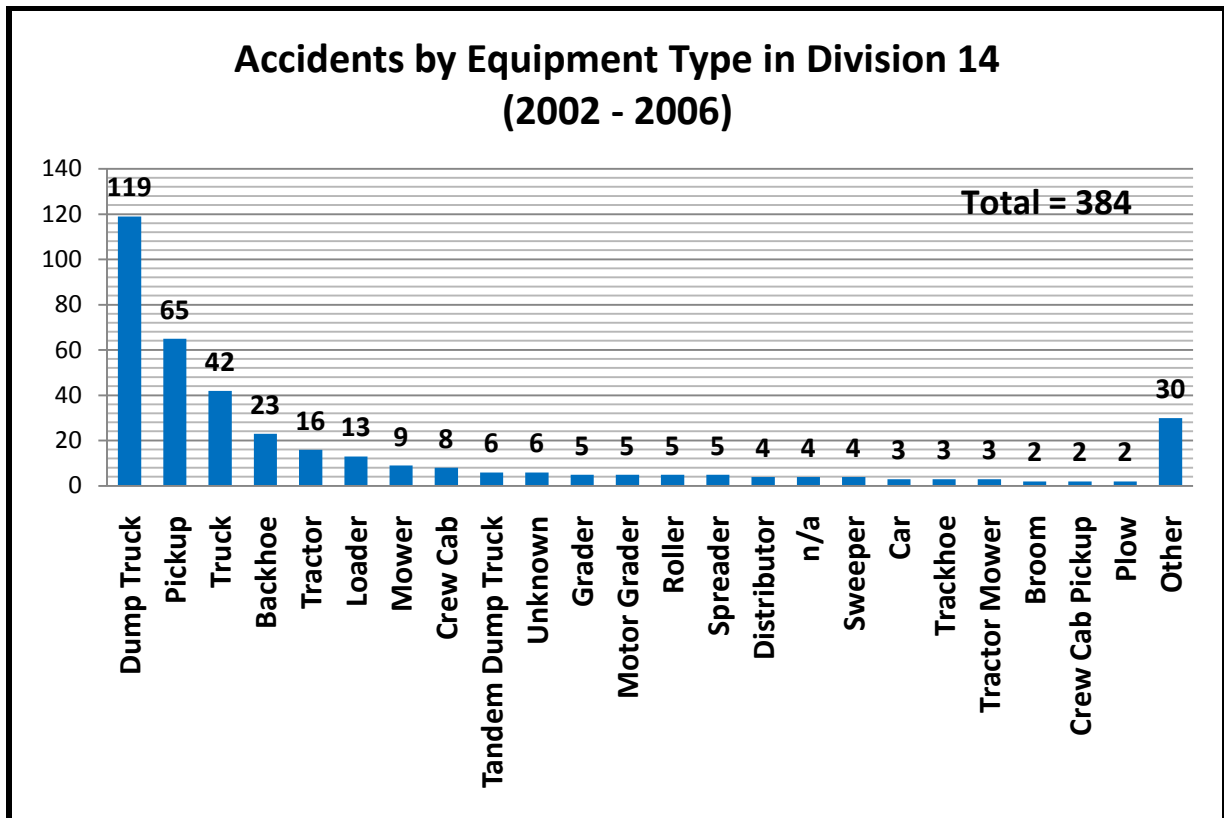


The graph below shows the trend line throughout the years for the number of accidents related to the year. The graph indicates an almost sporadic number of accidents per year. The number originally began to decrease from 77 accidents in 2002 to 34 accidents in 2003. The value then started climbing through 2004 to 2005. It peaked in 2005 with 115 accidents.



2. Accidents by Equipment Type

The graph below displays the accidents by equipment type in Division 14. Division 14 had a total of 384 accidents by different equipment types occurred during the study period. “Dump trucks” had the greatest value with 119 accidents. “Pickup” and other types of trucks followed behind with values of 65 and 42 accidents respectively. The “Other” category also had a decent sized number with 30 accidents. The “Other” equipment types can be found in the table below the graph. The graph shows the values in a descending order.

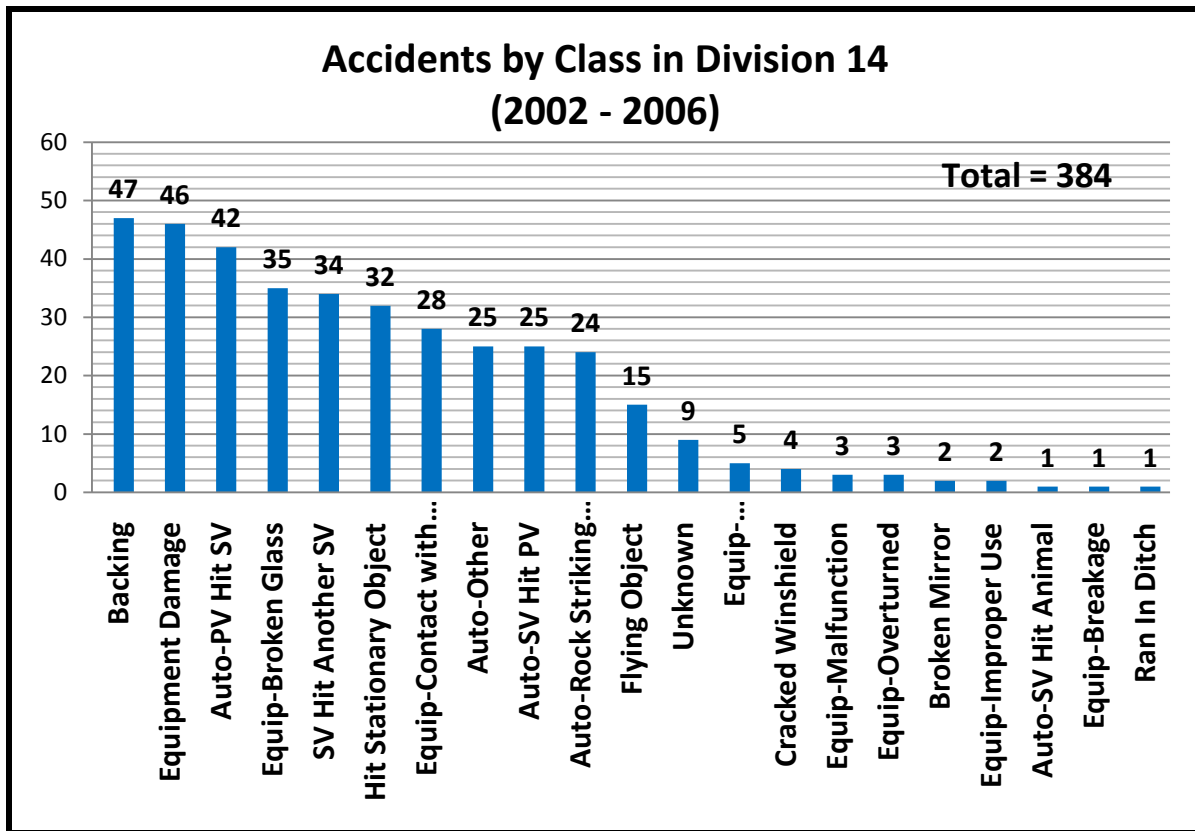


Total of thirty different equipment types as classified as “Other” are listed below.

Aggreg. Spreader	Excavator	Service Truck
Asphalt Tank	Flatbed Truck	Snow Plow
Attenuator	Fuel Truck Body	Squad Truck
Barrier Light	Kodiak	Stone Spreader
Boom Mower	Leeboy Broom	Stratus
Chainsaw	Lowboy	Suburban
Chipper	Mulcher	Tow Trailer
Crash Barrier	Rubber tire loader	Van
Durango	Salt Conveyer	Water Truck
Equipment	Saw	Wood Chipper

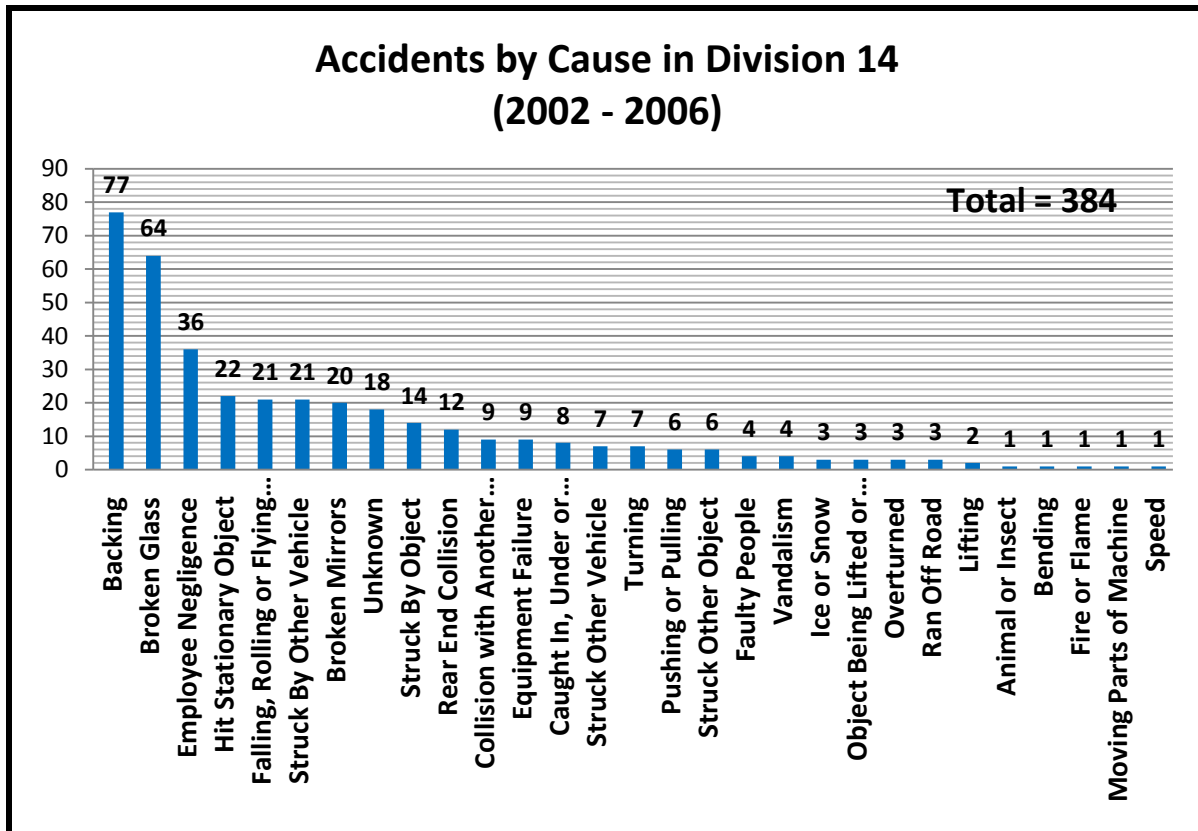
3. Accident by Class

According to the RISKMASTER data, the graph below indicates that there were a total of 264 accidents in Division 14. After analyzing the data in Division 14, “Backing” had the greatest amount of records with 47 (12%). The second that was only one less were the records of “Equipment damage” with 46 records. The graph below displays the information in a declining trend.



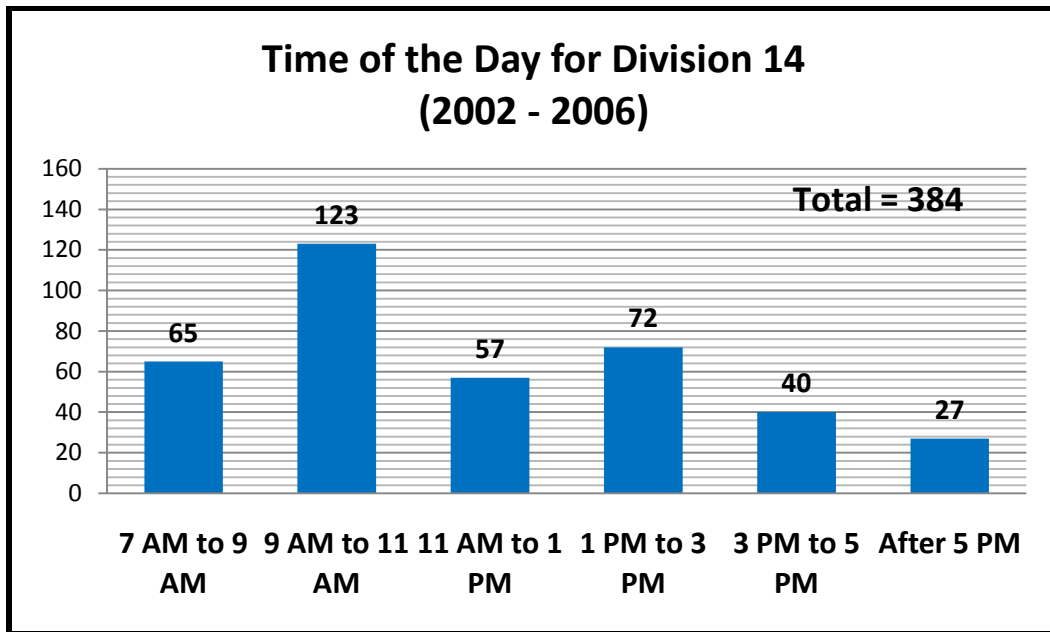
4. Accidents by Cause

According to the RISKMASTER database, the leading cause of accidents in Division 14 was due to 'Backing' with 77 records, followed by "Broken glass" with 64 records. The fewest accidents were caused by "Moving parts of a machine" and "Speed" with 1 record each. The data is displayed in a descending order.



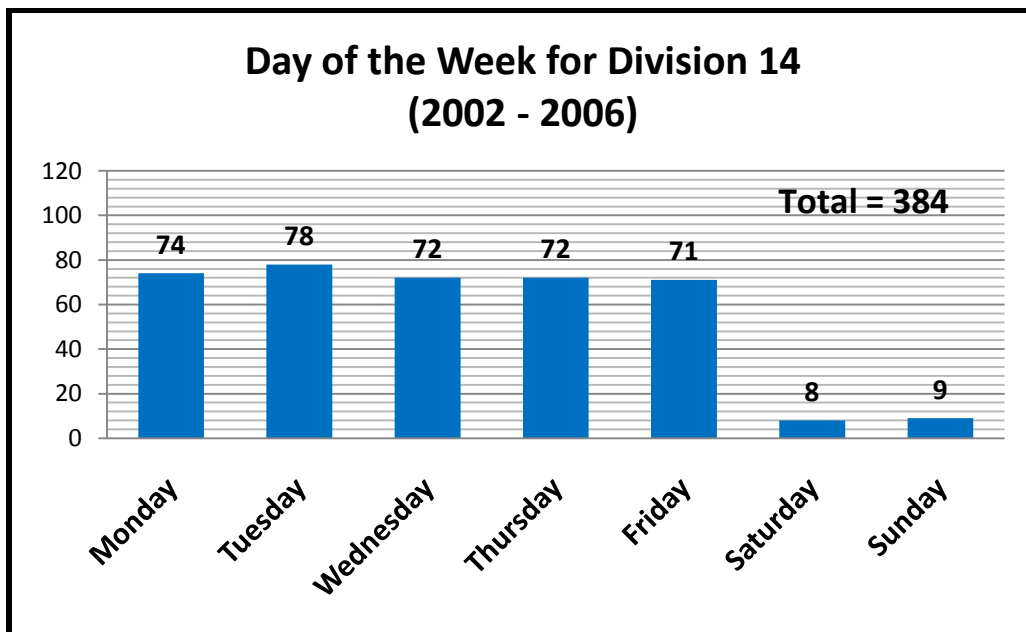
5. Time of the Day

The graph below shows the data for Division 14 during 2002 to 2006 broken up into various time periods. Most accidents were recorded during the time period of 9 AM to 11 AM with 123 records.



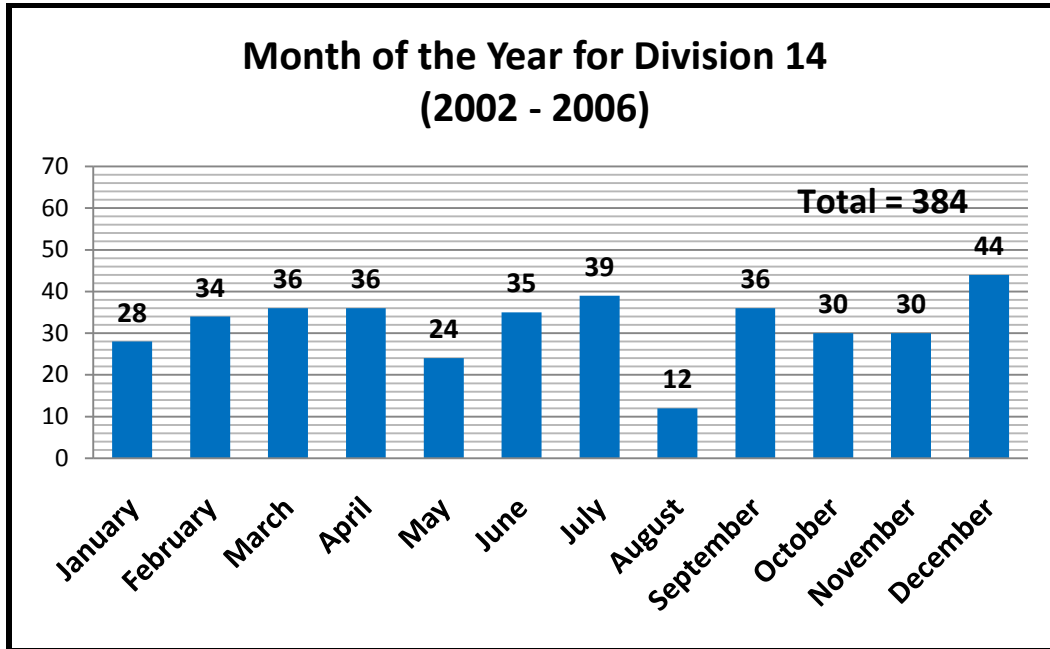
6. Day of the Week

The graph below shows the RISKMASTER data as a graph broken into days of the week. It indicates that the number of accidents in Division 14 is fairly constant in terms of the day they occurred during the weekdays.



7. Month of the Year

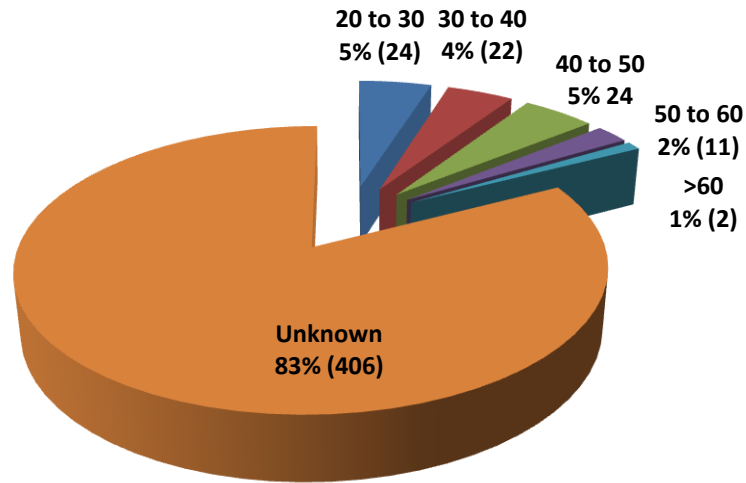
The data below shows a fairly even spread of the number of accidents related to the month except for the month of May. Interestingly, the month August had the least amount of accidents with a value of 12 while the most accidents were occurred on December with a total of 44.



8. Age Group

The greater than 60 age class had the least amount of accidents with 1%, followed by the age group of 50 to 60 with 2%. The greatest number of accidents occurred in the unknown age category with a percentage of 83%, followed by 5% in the 20 to 30 age group.

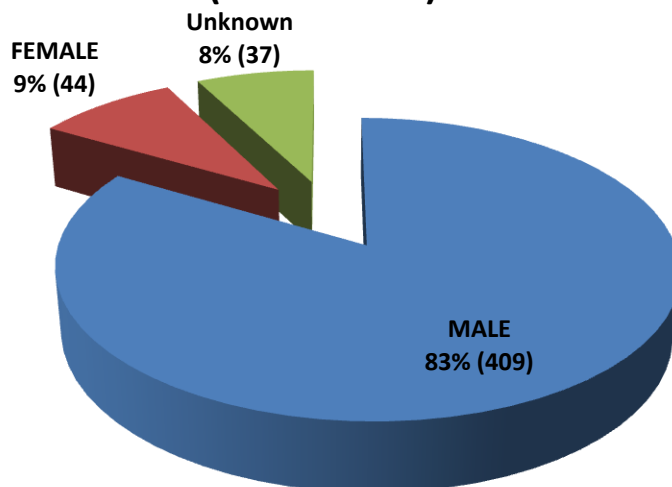
Accidents by Age Group for Division 14 (2002 - 2006)



9. Gender

The chart below shows how the two genders relate in the number of accidents that occurred in Division 14. The male category had the highest number with 83% while the female category had the smaller number of 9%.

Accidents by Gender for Division 14 (2002 - 2006)



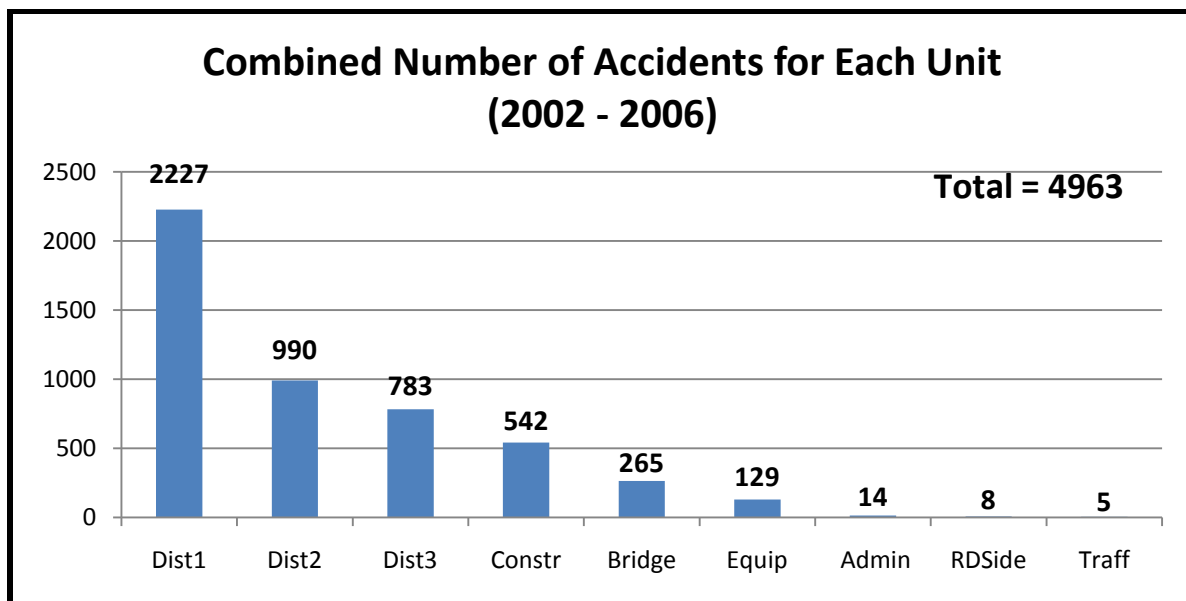
ACROSS ALL 14 DIVISIONS

This section presents the combined performance results of all operating units and offices of 14 Divisions of NCDOT. Consistent with the analysis from the RISKMASTER, the recorded numbers of accidents for the construction unit from 2002 to 2006 are 542 accidents. Bridge unit recorded 265, Equipment 129, Traffic Office with the least accidents (5). Table and chart reflects the trend of accidents in a descending order.

1. Combined Number of Accidents for Each Unit

Accidents across 14 divisions are a representation of the performance of all the divisions and each working unit in the NCDOT. The recorded number of accidents for all District 1 combined was 2227. Districts 2 and 3 were next in order with the number of combined accidents of 990 and 783, respectively.

Combined Number of Accidents for Each Unit (2002 – 2006)															
	Div 1	Div 2	Div 3	Div 4	Div 5	Div 6	Div 7	Div 8	Div 9	Div 10	Div 11	Div 12	Div 13	Div 14	Total
Dist1	135	149	154	194	258	62	157	188	126	181	131	142	149	201	2227
Dist2	39	36	63	75	86	92	40	109	89	93	87	44	70	67	990
Dist3	63	43	86	98	107	74	18	73	0	85	61	0	0	75	783
Constr	30	20	58	83	63	26	15	23	32	96	16	49	12	19	542
Bridge	14	19	31	23	19	8	6	22	15	22	29	8	31	18	265
Equip	8	13	6	31	12	6	0	10	7	12	8	10	2	4	129
Admin	1	2	4	1	1	1	0	2	0	1	0	1	0	0	14
RDSide	6	0	0	0	0	0	0	0	0	2	0	0	0	0	8
Traff	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5

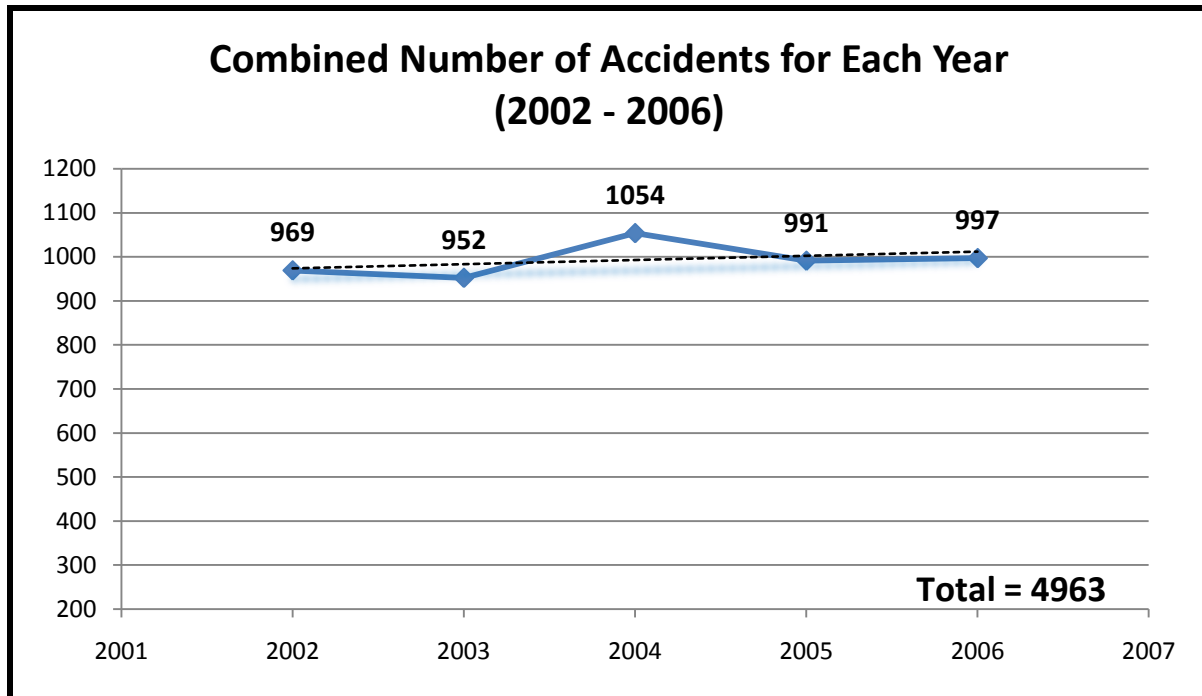


2. Combined Number of Accidents of all 14 Divisions per Year

The number of accidents over the study period in 14 Divisions combined represents an annual performance of all the divisions, districts and offices in the North Carolina Department of Transportation from 2002 to 2006. In 2004, a total of 1,054 accidents were recorded as the peak of accidents during the study period, followed by 2006, 2005, 2002, and 2003. The trend of occurrence actually follows a gradual increase from 2002-2006 as denoted by the dashed line. Table and chart below reflect the trend of accidents in a descending order.

Combined Number of Accidents for Each Year (2002 – 2006)															
	Div 1	Div 2	Div 3	Div 4	Div 5	Div 6	Div 7	Div 8	Div 9	Div 10	Div 11	Div 12	Div 13	Div 14	Total
2002	55	46	51	101	92	41	99	70	50	90	53	75	69	77	969
2003	44	70	87	93	113	42	64	78	41	86	80	39	81	34	952
2004	60	58	85	138	123	70	27	93	53	114	71	44	37	81	1054
2005	58	54	73	82	130	62	26	97	59	105	62	44	24	115	991
2006	84	54	106	91	88	54	20	89	66	97	66	52	53	77	997

The graph below shows the trend line for the number of combined accidents during 2002-2006. It shows a slight incline of the number of accidents over the years (969 accidents in 2002 slightly increased to 997 accidents in 2006).



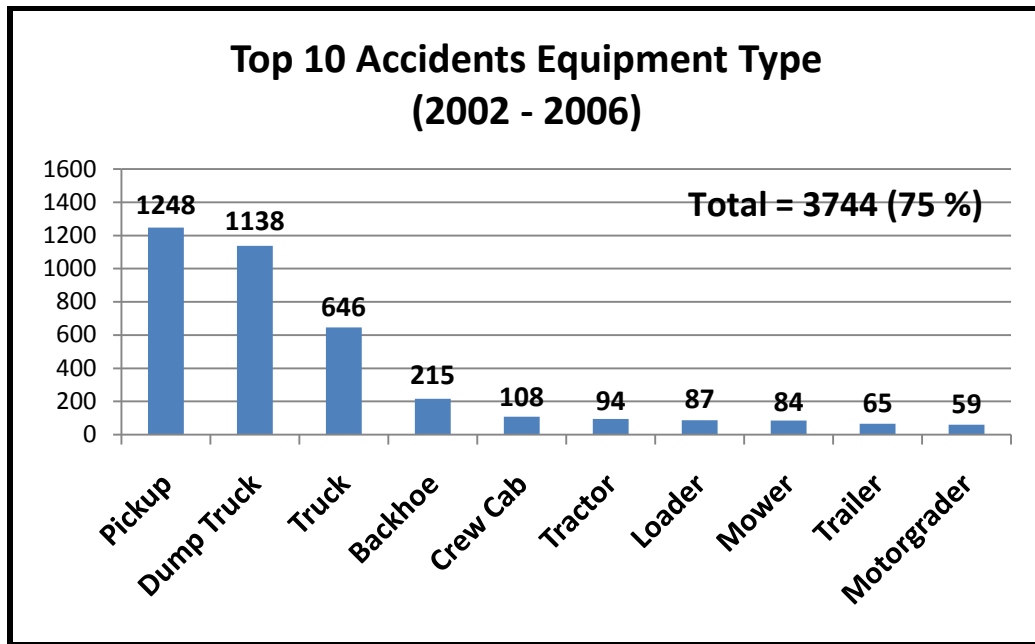
3. Combined Number of Accidents by Equipment Type

The table below shows the combined number of accidents by different equipment type. “Pickup” (1248 accidents), “Dump Truck” (1138 accidents), and “Truck” (646 accidents) had

the greatest amount of accidents. These three categories accounted for 61 percent of the total accidents that occurred from 2002 to 2006.

Accidents by Equip. Type\Division	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Pickup	70	61	95	142	157	52	53	67	94	164	61	110	57	65	1248
Dump Truck	55	31	69	125	124	62	66	137	54	113	90	29	64	119	1138
Truck	31	10	91	72	95	37	37	52	14	57	49	17	42	42	646
Backhoe	16	3	22	27	19	13	17	21	8	10	19		17	23	215
Crew Cab		9	9	8	7	4	3	11	16	17	6		8	10	108
Tractor	4	10	9	10	9	4		7		12	7	2	4	16	94
Loader	8	5	9	9	6	4	7	12	2	5	3		4	13	87
Mower	7	2	3	7	6	21	2	9	2	6	5	2	3	9	84
Trailer	7	3	9	8	8	3	4	3	3	9	2	2	4		65
Motorgrader	9	4	3	4	9	3		8		8		2	4	5	59
Grader	7	5	3	6	4	6		8		2	4		7	5	57
Excavator	14	7	8	5	2	2		8		3			4		53
Tandem	4	25		3	6			3	4	4		4			53
Tandem Dump Truck	2		4	5	4	2	5		8	5			7	6	48
Flat Bed		13	4	3	4	2			4	5	3		2		40
Spreader	3			2			5	6	5		4		4	5	34
Kodiak	3		7		2	3	2	2			7	2	4		32
Roller	3	2	3	4	5			6			4			5	32
Not Specified	20	1										4		4	29
Tractor Mower	4		3		5	4				5				3	24
Car			3		2	2		4	2	7				3	23
Unknown				12							4			6	22
Distributor					3			9			2			4	18
Bucket Truck	2	2	2		8							3			17
International Crew Cab		9										6			15
Crane	2		2	4		2		2	2						14
Van			2		2	2			2	4	2				14
Boom Tractor		2		5	2					2				2	13
Boom Truck	3					3			2		4				12
International Tandem		4										8			12
Snow Plow						4					3		2	2	11
Backhoe Loader			3		2		3		2						10
Sweeper			3			3								4	10
A-Boom Mower			3		2	2	2								9
Ranger		2							2		4				8
Attenuator			2		3	2									7
Pan								4		3					7
Blazer				2				4							6
Suburban		3								3					6
Chipper				2							2				4
Ford	4														4
Mack		3													3
Tar Kettle				3											3
Freightliner		2													2
Lube Truck	2														2
Sod Seeder			2												2
Utility Truck		2													2
Volvo	2														2
Other	19	62	29	37	50	27	30	44	43	48	47	63	27	33	559

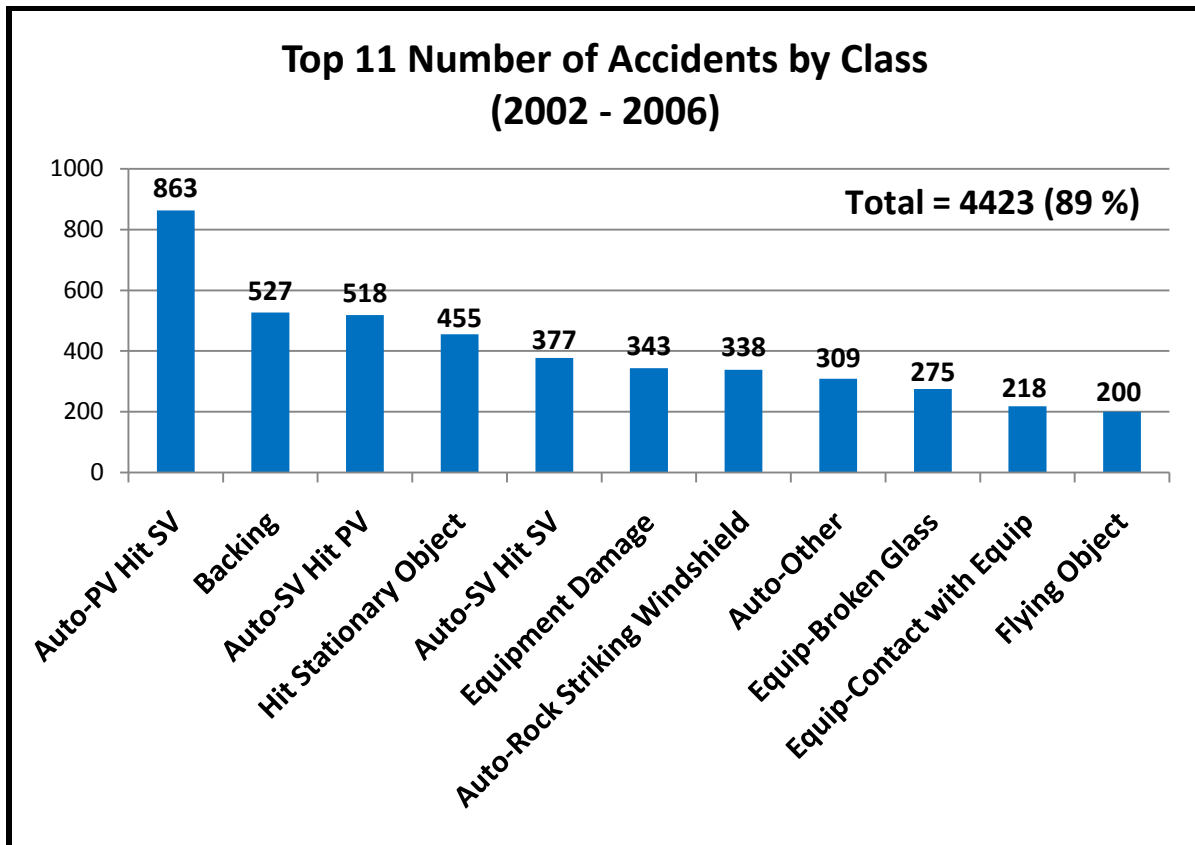
The following chart displays the combined number of top 10 equipment type frequently involved in accidents. These top 10 equipment types account for approximately 75% of the total accidents. The graph shows the information in a descending order.



4. Combined Number of Accidents by Class

The table below shows the accidents by class in descending order. It also reflects the result of each accident in all divisions combined. “Auto-PV Hit SV,” “Backing,” and “Auto-SV Hit PV” together had the highest number of accidents. The next largest values were: “Hit a stationary object,” and “SV hit another SV.” The graph displays the data in a descending order.

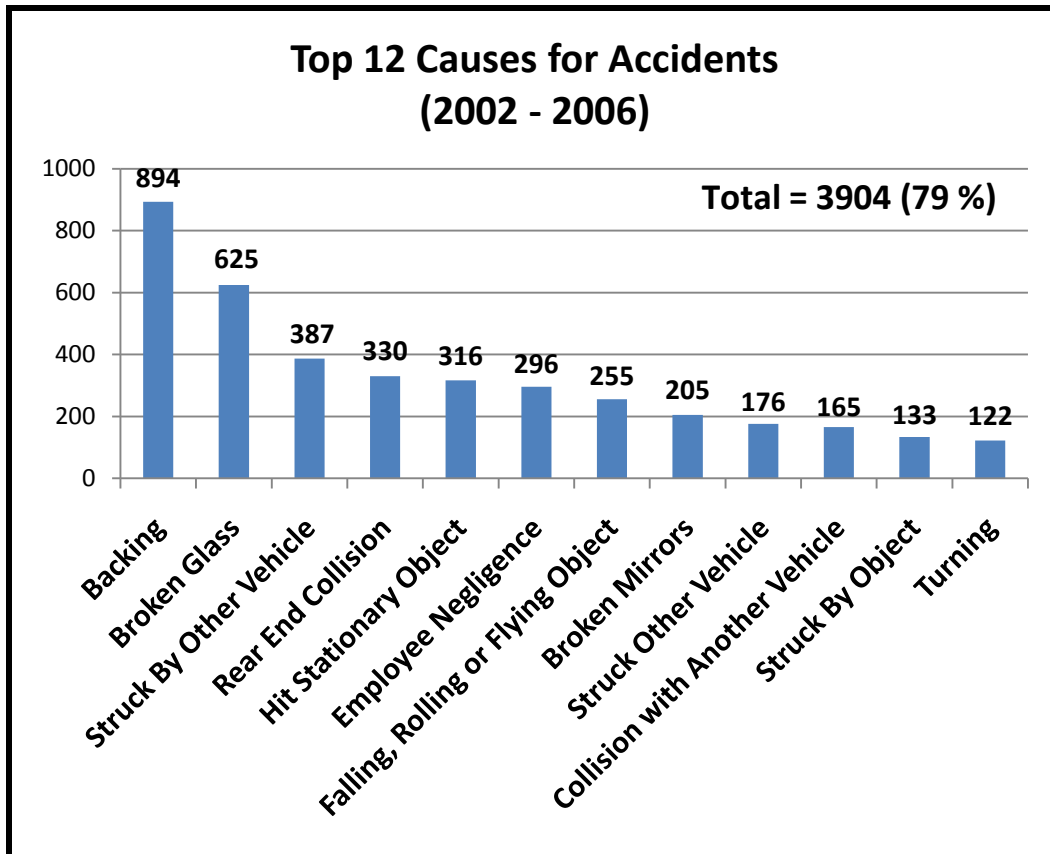
Accidents by Class\Division	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Auto-PV Hit SV	39	78	72	77	102	49	34	47	67	98	65	63	30	42	863
Backing	36	39	37	62	51	25	15	48	28	54	29	24	32	47	527
Auto-SV Hit PV	38	42	48	40	52	26	19	32	37	54	35	52	18	25	518
Hit Stationary Object	22	25	38	51	56	24	24	30	18	53	32	26	24	32	455
Auto-SV Hit SV	15	30	17	45	35	11	24	46	34	21	14	23	28	34	377
Equipment Damage	21	3	26	47	34	17	26	38	7	41	18	11	8	46	343
Auto-Rock Striking Windshield	13	1	23	28	48	21	17	53	9	30	40	8	23	24	338
Auto-Other	11	26	27	32	34	19	22	20	17	32	23	7	14	25	309
Equip-Broken Glass	32	2	37	30	26	14	7	22	7	25	16	2	20	35	275
Equip-Contact with Equip	19	1	18	13	30	13	13	27	12	18	11	2	13	28	218
Flying Object	11	8	9	22	23	11	10	23	7	14	12	22	13	15	200
Unknown	1	4	10	8	7	19	5	7	9	19	6	3	14	9	121
Equip-Disconnect/Dislodge	9		9	15	13	4	2	8	4	6	6		4	5	85
Equip-Overturned	2	9	7	12	4	3	2	9	6	6	8	5	7	3	83
Auto-SV Hit Animal	10	3	8	4	16	6	2	4	2	4	5	2		1	67
Ran in Ditch	8	5	6	3	7	3	2	2		5	2	2	5	1	51
Cracked Winshield			4	6	3	1	2	4	1	4	2		7	4	38
Equip-Malfunction	5	1	2	1	1		3	1		4	3	1	1	3	26
Equip-Breakage	3	1	1	1		2	2	5		1	1		2	1	20
Broken Mirror	4		1	3	1	1	1			1	1	1	1	2	17
Equip-Improper Use	2	4		3	3		2		1					2	17
Equip-Defect				1					2						3
Equip-Tampered With			2							1					3
Dmg-Equip							2	1							3
Dmg-Auto											2				2
Auto-SV Hit Pedestrian									1						1
Dmg-Auto				1											1
Park-Drowning										1					1
Dmg-Building											1				1



5. Combined Number of Accidents by Cause

The total number of accidents by cause in all 14 divisions combined was 4963, and the highest cause of accidents came from both “Backing” and “Broken Glass” with the total of 1519 combining two causes. The chart below summarizes accidents by cause in a descending order. Top 12 leading causes of accidents are listed on the chart below.

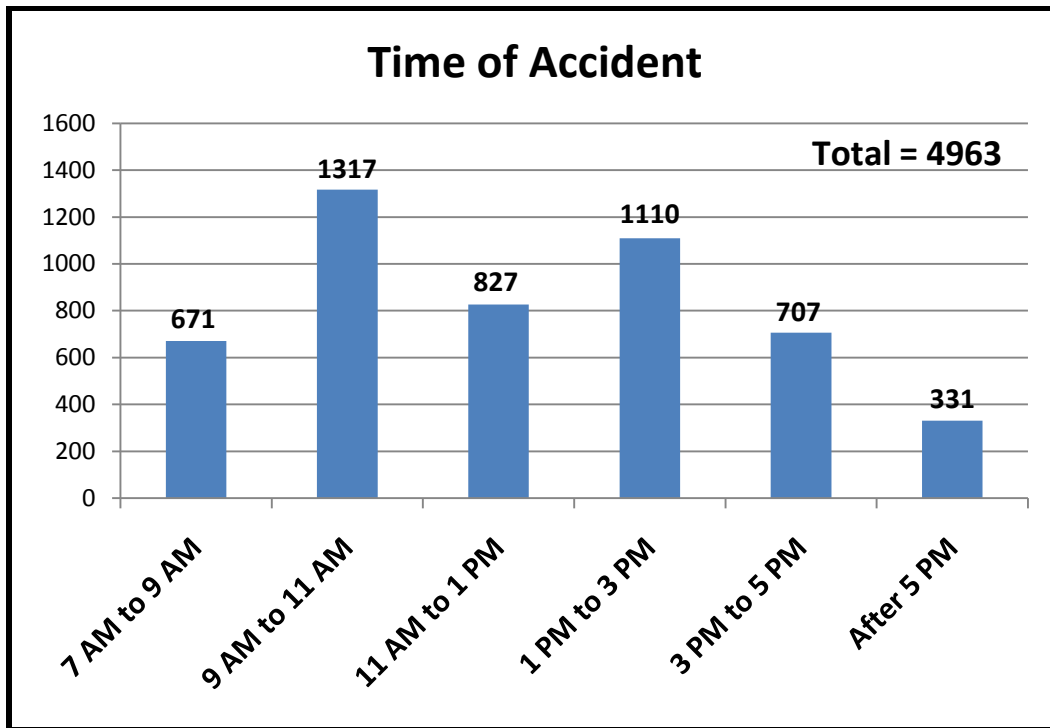
Accidents by Cause\Division	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Backing	58	50	63	93	94	40	41	86	60	82	47	58	45	77	894
Broken Glass	41	3	62	68	78	35	20	80	12	51	60	7	44	64	625
Struck By Other Vehicle	10	50	28	33	47	23	15	17	32	37	29	36	9	21	387
Rear End Collision	12	29	26	30	41	10	14	22	25	49	18	23	19	12	330
Hit Stationary Object	9	23	28	39	39	22	16	18	8	30	25	18	19	22	316
Employee Negligence	15	5	25	28	33	16	20	33	19	29	21		16	36	296
Falling, Rolling or Flying Object	16	3	12	30	27	20	26	28	9	23	16	3	21	21	255
Broken Mirrors	22	6	26	24	18	11	4	19	3	21	19	2	10	20	205
Struck Other Vehicle	6	26	12	17	16	12	5	14	10	19	9	14	9	7	176
Collision with Another Vehicle	10	15	13	13	19	9	7	9	18	10	7	19	7	9	165
Struck By Object	11	14	9	14	14	3	7	9	3	8	9	14	4	14	133
Turning	7	4	10	18	9	10	6	11	13	11	6	6	4	7	122
Caught in, Under, or Between	11	1	5	15	7	6	7	19	3	8	6	1	2	8	99
Equipment Failure	10	3	6	6	4	1	5	11	1	10	4	1	7	9	78
Faulty People	1		11	7	19	7	3	5	3	9	7	2		4	78
Overturned	3	8	5	11	5	3		7	3	6	8	4	5	3	71
Animal or Insect	8	3	7	6	16	7	2	5	2	6	4	2		1	69
Ran Off Road	5	10	5	7	9	4	2	5	5	6	3		5	3	69
Ice or Snow	4	2	2	7	4	3	3	4	7	8	8	2	3	3	60
Other			8	1	3		1	6	2	12	5	6	11		55
Struck Other Object	2	6	2	8	6	1	3	2	2	2	4	2	2	6	48
Not Specified	15	5						2	1			11			34
Pushing or Pulling	3		3	3	5		6	2		3	3			6	34
Collision with Fixed Object	4	2		3	4	1	2		7		3	5	2		33
Vandalism	1	1	7		2					8				4	23
Object Being Lifted or Handled	3				2	2	1	2	1		2			3	16
Machine or Machinery	2	1	2				4			4					13
Contact with Electrical Current	4		2	1		1	2		1						11
Tire Failure			4	3	1				1	2					11
Speed	2		2		1		2		1					1	9
Fire or Flame				1								4	2	1	8
Low Shoulder				1								5			6
Policy Not Followed		3							2						5
Procedure Factors	3	1													4
Bending					1				1					1	3
Lifting	1													2	3
Motor Vehicle (Hit by)	2					1									3
Moving, Stepping Aside		1				2									3
Moving Parts of Machine					2									1	3
Hand Tool or Machine in Use				2											2
Collapsing Matels		1													1
Digging/Drilling												1			1
Unknown		6	17	16	20	19	12	11	14	38	9	8	18	18	206



6. Combined Time of the Day

The table below shows the 14 divisions during 2002-2006 and the relation between the time of the day and the accident. The majority of the accidents occurred between 9 AM to 11 AM with a total of 1317 accidents. The second and third greatest number of accidents occurred between 1 PM to 3 PM and 11 AM to 1 PM.

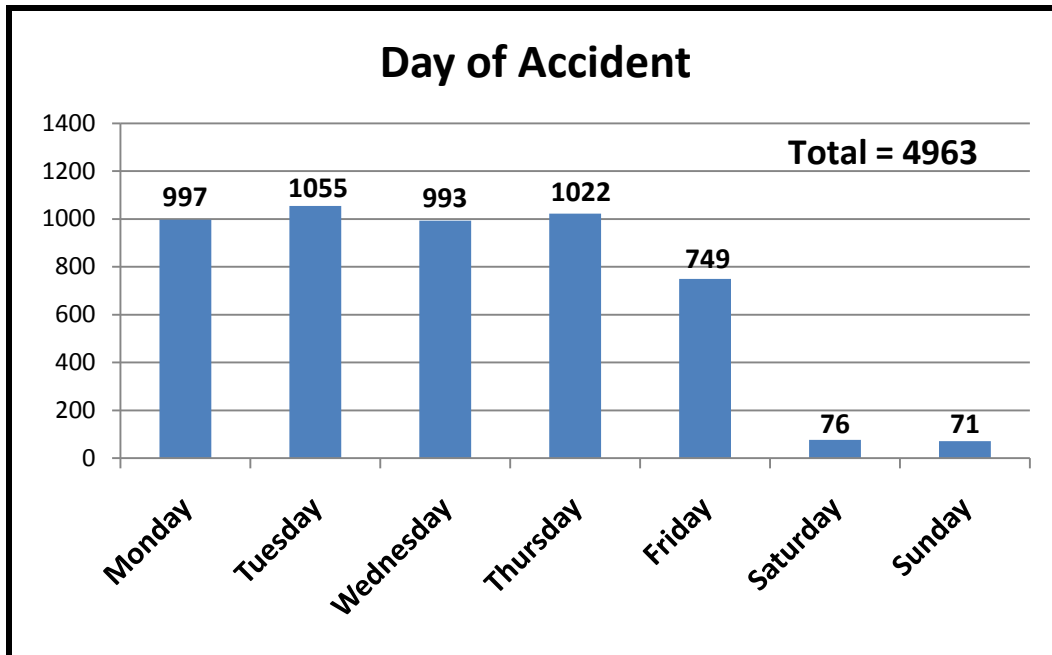
Time of Accident	Division														Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
7 AM to 9 AM	33	33	55	64	64	34	36	40	46	77	46	42	36	65	671
9 AM to 11 AM	87	86	101	147	150	59	53	115	53	143	87	48	65	123	1317
11 AM to 1 PM	57	42	67	85	97	44	35	79	44	71	62	39	48	57	827
1 PM to 3 PM	67	58	85	104	124	73	46	112	68	97	77	61	66	72	1110
3 PM to 5 PM	41	38	72	78	69	41	37	69	32	62	44	45	39	40	707
After 5 PM	16	25	22	27	42	18	29	12	26	42	16	19	10	27	331



7. Combined Day of the Week

The table and the graph below displays the combined number of accidents divided into the seven days of the week during the years 2002-2006 for the 14 division of the NCDOT. Tuesdays had the greatest number of accident with 1055, followed closely by Thursday, Monday, and Wednesday.

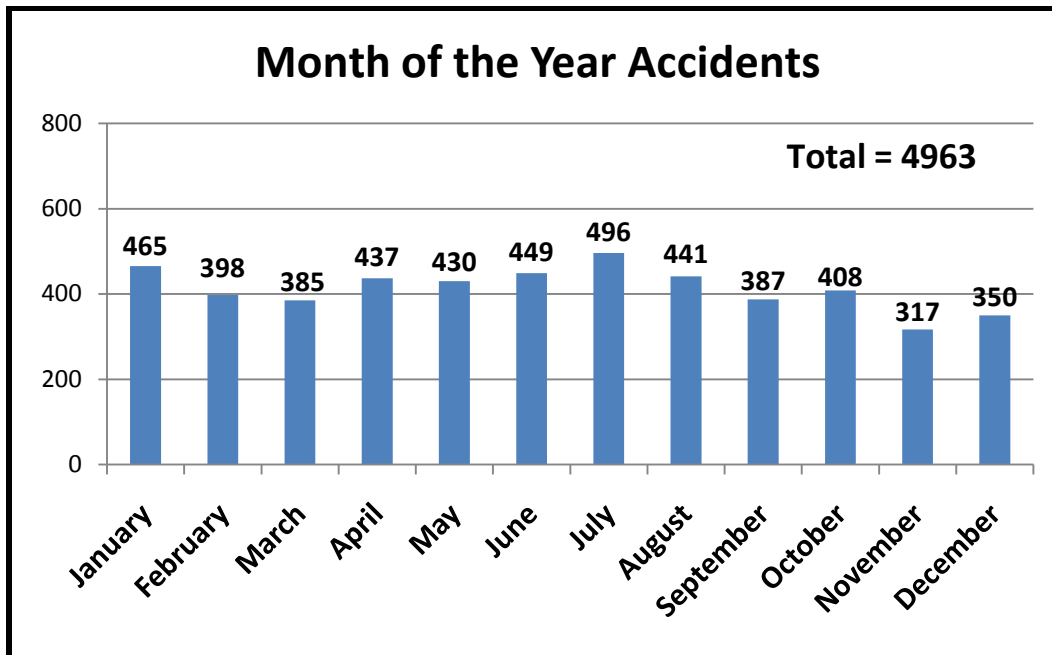
Day of Accident	Division														Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Monday	72	66	85	95	107	46	37	87	52	92	59	69	56	74	997
Tuesday	62	71	76	112	108	54	66	89	45	118	63	58	55	78	1055
Wednesday	55	57	96	115	114	58	41	90	66	89	66	33	41	72	993
Thursday	54	53	76	100	109	56	46	103	59	100	67	55	72	72	1022
Friday	46	34	61	73	97	47	37	53	42	72	57	35	24	71	749
Saturday	4	1	3	4	5	4	6	4	3	13	10	3	8	8	76
Sunday	8	0	5	6	6	4	3	1	2	8	10	1	8	9	71



8. Combined Month of the Year

The following graph shows the data of the 14 divisions represented as the twelve months of the year. The month with the greatest amount of incidents was July with a total of 496. The month with the least amount of accidents was November with a total of 317.

	Division														
Month of Accident	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
January	20	25	37	47	56	28	33	36	21	49	33	25	27	28	465
February	23	21	21	29	38	25	35	32	18	41	34	24	23	34	398
March	28	19	34	44	28	19	23	24	24	37	25	27	17	36	385
April	28	29	34	41	51	22	19	34	29	39	27	13	35	36	437
May	30	32	38	49	37	22	17	38	27	36	24	31	25	24	430
June	23	27	24	41	53	29	15	44	20	52	32	29	25	35	449
July	34	34	41	55	41	33	20	42	26	56	28	20	27	39	496
August	16	27	44	49	61	19	22	50	24	43	27	20	27	12	441
September	20	20	35	44	36	21	10	37	21	38	32	22	15	36	387
October	36	20	37	42	50	18	12	29	30	42	21	24	17	30	408
November	21	13	32	21	48	15	9	34	11	39	24	11	9	30	317
December	22	15	25	43	47	18	21	27	18	20	25	8	17	44	350



DESCRIPTIVE INCIDENT ANALYSIS

This portion reflects data breakdown and graphical summary of incidents and injuries from all the 14 divisions, districts and offices of the NCDOT. These summaries are classified according to incidents. Each incident is outlined according to the (1) number of incident in each division, (2) number of injuries by body part (3) dollar loss by cause of injuries (4) dollar loss for all claims (5) time, day, and month, (6) incidents by age group and (7) incidents by gender. The same approach is taken to present analyses results of incidents across all 14 divisions.

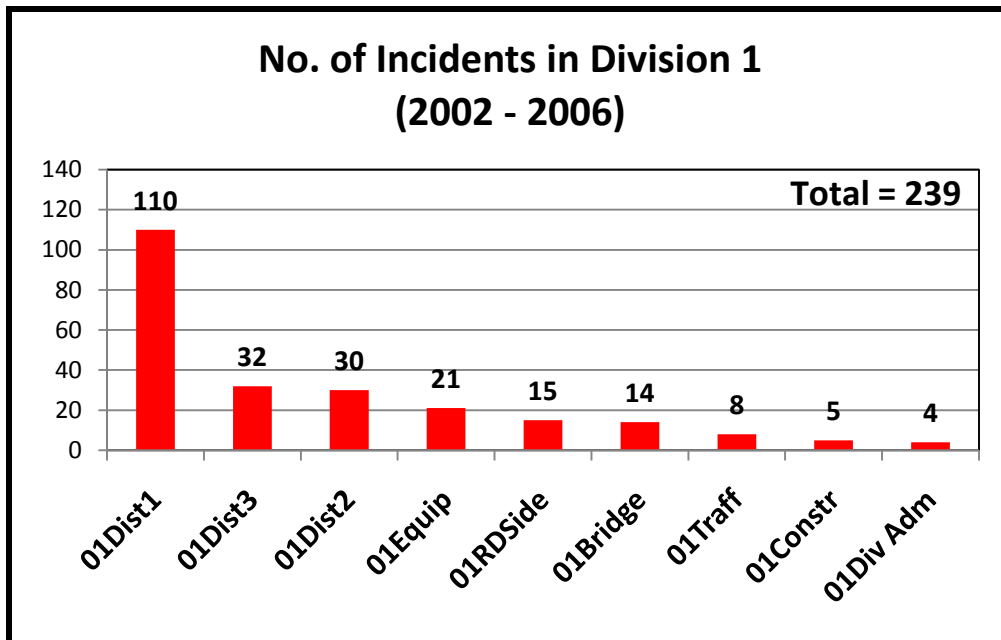
WITHIN EACH DIVISION

Within each NCDOT division, incidents are represented according to the division and several different units maintained by the division. Each division and the incidents that occurred in it is represented according to Districts 1, 2, & 3, and their respective operating units. Each division is unique in its data analysis and performance during this study period.

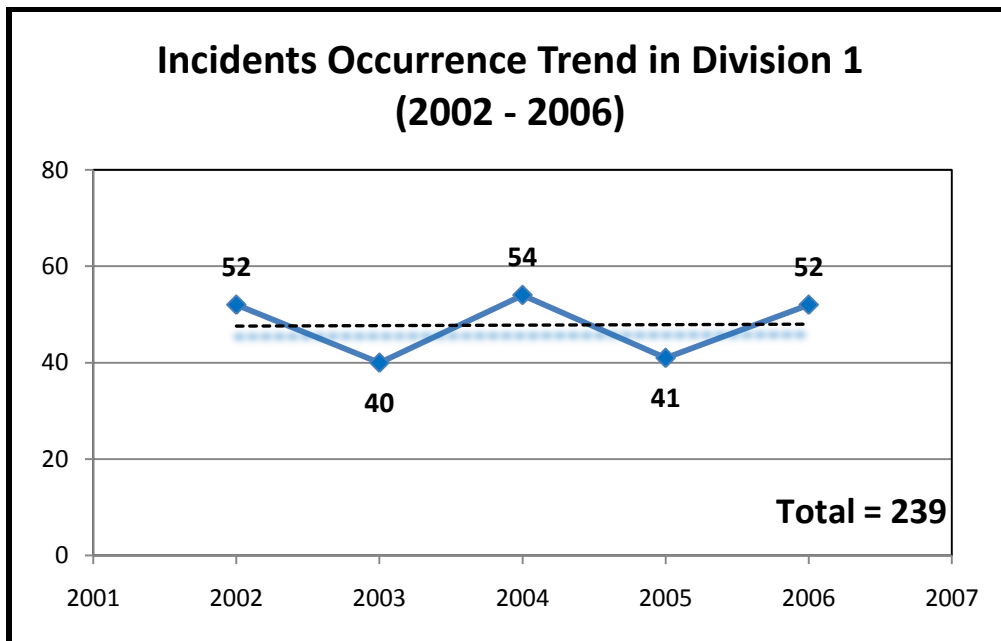
DIVISION 1

1. Number of Incidents

According to the analysis from the database, the total numbers of incidents for Division 1 from 2002 to 2006 totaled 239 incidents. District 1 had the most incidents with 110 while District 3 and District 2 followed with 32 and 30, respectively. The Equipment office had 21, Roadside with 15, Bridge and Traffic with 14 and 8, while the Administration had the least incidents of 4. Yearly incident graph below reflects the trend of incidents in Division 1 during the study period.



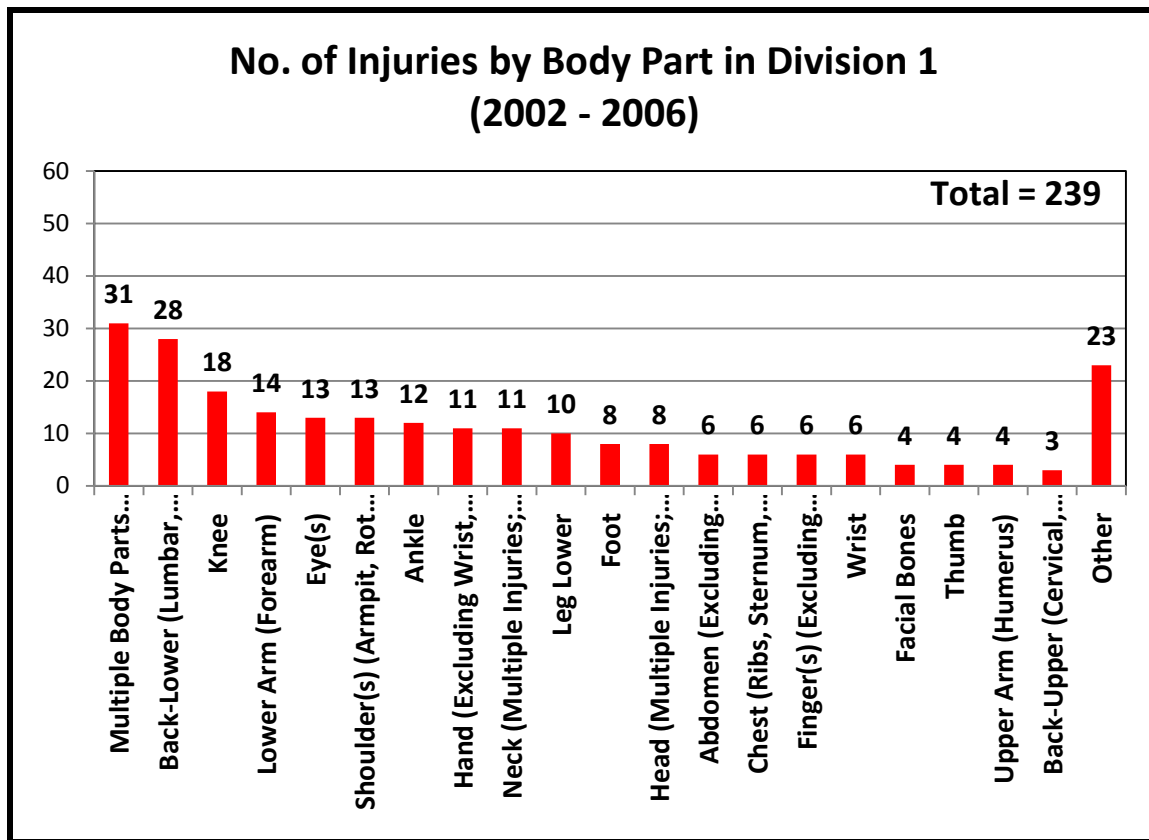
The graph below shows the number of incidents broken down into the 2002-2006 period. The graph seems to have a fairly constant trend line. It starts at 52 incidents in 2002, decreases in 2003 and then back up in 2004. It follows this pattern and ends with 52 incidents in 2006.



2. Number of Injuries by Body Part

The analysis by body part reflects the parts of the body affected during each incident in Division 1 and other districts and operating units. The highest incidents were recorded as a result of incidents with the “lower back” and “multiple body parts” like leg, arm, ankle and

knee. These injuries and incidents occurred due to numerous activities by the affected persons. A graphical representation of the number of incidents by body part can be seen below. Table lists remaining body parts grouped as “Other.”



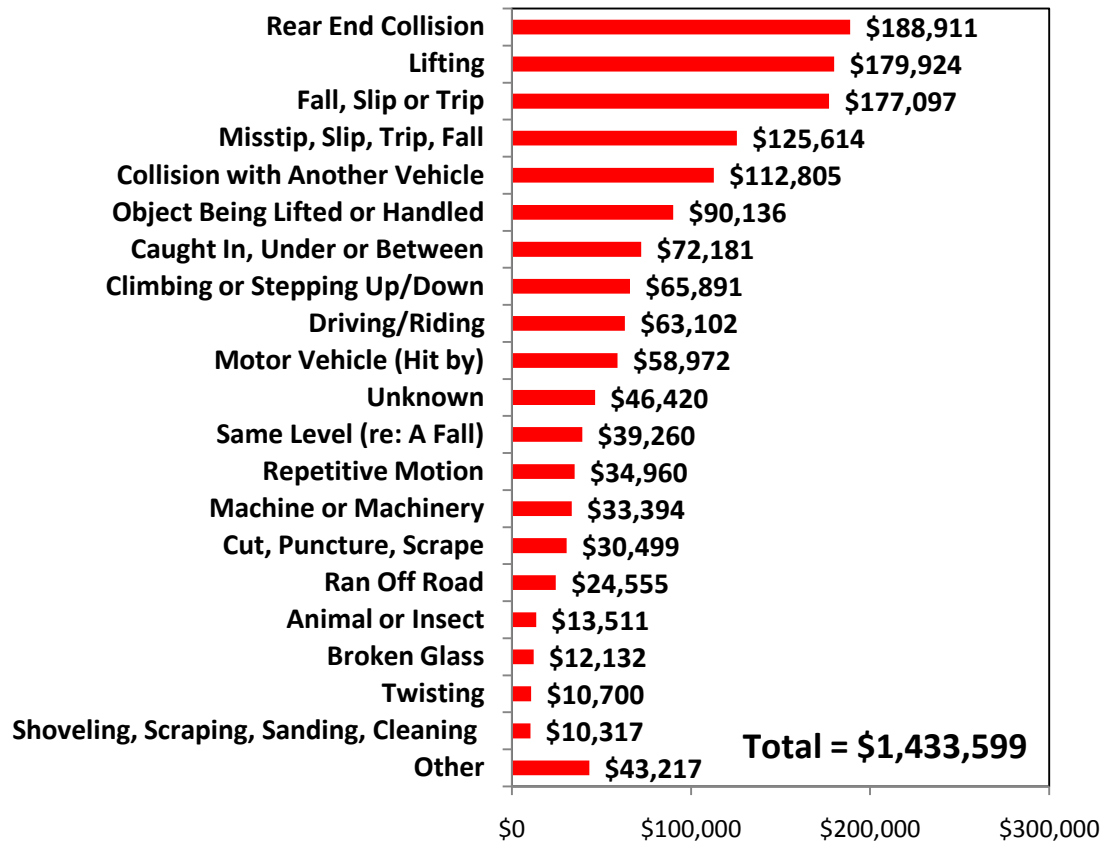
Other Body Parts

Facial Soft Tissue	Teeth-Tooth
Wrist(s) & Hand(s)	Thigh, Upper Leg
Ear(s) (Eardrum)	Buttocks
Elbow (Radial Head)	Lower Extremities (Legs, Multiple Inj. To Comb. Part)
Hip	No Physical Injury (Mental Disorder)
Lungs	Toe(s)

3. Dollar Loss by Cause of Injuries

From the database, the following information about dollar loss by cause of incidents was analyzed and the resultant cause of expense was also picked up. In summary, of the highest and the lowest cause of expense, rear ending accounted for \$188,911, followed by incidents that resulted from lifting, falls or slip off balance, which accounted for \$180,000 and \$177,000. Among the lowest cause of incidents by dollar loss were, results from shoveling, bending, and bending with \$10,000 and \$7,000 each. A detail graphical representation can be seen on chart below. Table below includes miscellaneous causes of injuries labeled as “Other.”

Dollar Loss by Cause in Division 1 (2002 - 2006)



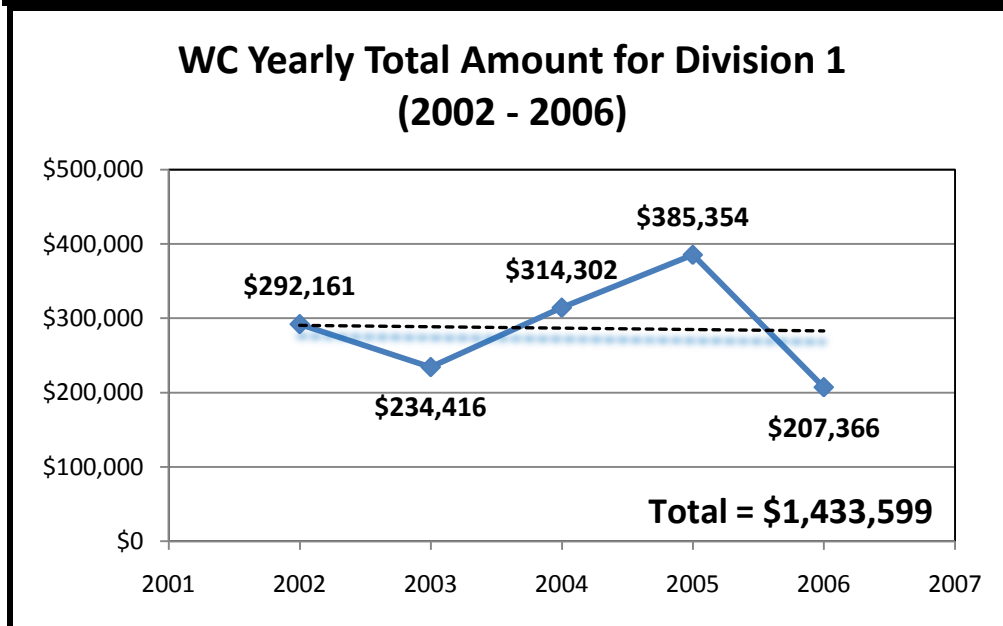
Other Causes of Injuries

Cause	Amount	Cause	Amount
Bending	\$7,009	Walking	\$543
Foreign Body in Eye	\$6,506	Dust, Gases, Fumes, or Vapors	\$407
Struck Other Object	\$4,565	Pushing or Pulling	\$305
Falling, Rolling or Flying Object	\$3,875	Fatality	\$225
Slipped, Did Not Fall Foot	\$3,839	Fall From Different Level	\$223
Hand Tool, Utensil (Not Powered)	\$2,778	Allergic Reaction/Rash	\$140
Hit Stationary Object	\$2,235	Heat Exhaustion	\$132
Jumping	\$1,998	Puncture Wound	\$97
Struck By Other Vehicle	\$1,878	Broken Mirrors	\$87
Hand Tool or Machine in Use	\$1,727	Overturned	\$83
Burns	\$1,491	Events Beyond the Injured Control	\$77
Struck By Object	\$1,023	Procedure Factors	\$51
Contact with Poison Ivy/Oak	\$1,009	Other External Factors	\$50
Heating Apparatus	\$828	Other Injury (Not Otherwise Classified)	\$36

4. Dollar Loss for All Claims

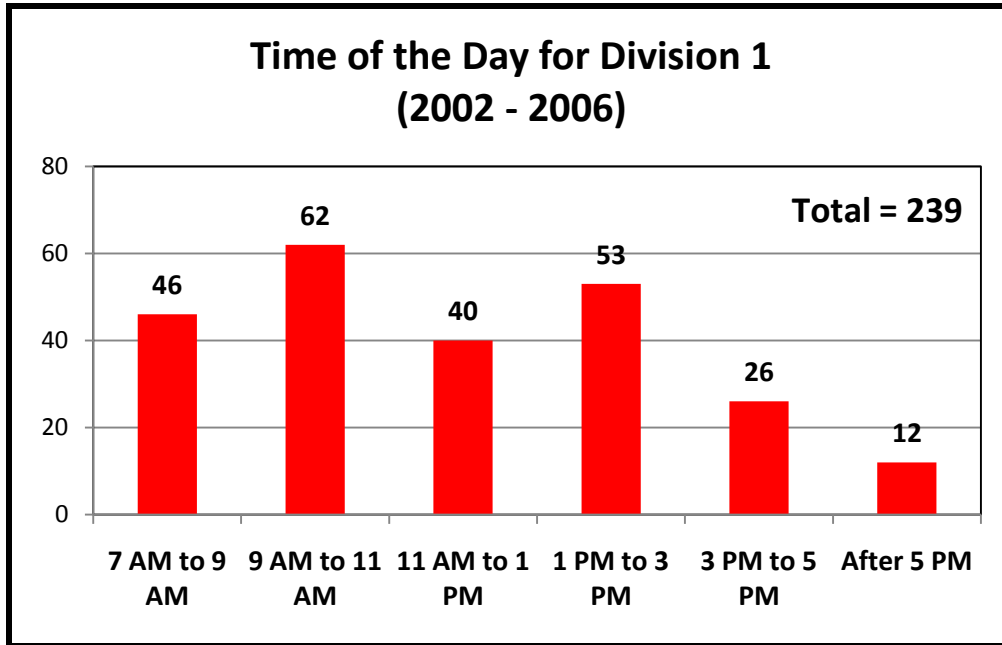
The dollar loss by all workers compensation claims signifies all claims that resulted from incidents during the study period. From 2002 to 2006, the total dollar loss by all WC claims for Division 1 was \$1.4 million. Table below summarizes each department in Division 1 with the total amount of dollar loss in descending order. Using the check date, the total dollar loss amount of \$1,433,599 is broken out by each year as shown on the graph with slight downward trend.

Dollar Loss by All WC Claims (2002 – 2006)					
Division 1					
Total = \$1,433,599					
Dept.	Amount	Dept.	Amount	Dept.	Amount
150723	\$ 301,259	01Dist 1	\$ 17,079	150205	\$ 1,263
3013	\$ 211,541	150724	\$ 16,284	150193	\$ 1,236
150204	\$ 167,834	150190	\$ 14,939	150727	\$ 1,194
3011	\$ 102,067	150200	\$ 11,607	150199	\$ 1,131
150202	\$ 71,192	150194	\$ 11,026	150732	\$ 673
150208	\$ 58,788	150188A	\$ 9,334	150191	\$ 667
150182	\$ 52,104	150189	\$ 9,273	150725	\$ 597
150731	\$ 49,104	150192	\$ 7,677	150893	\$ 542
150196	\$ 41,378	3012	\$ 7,458	150184	\$ 364
3017	\$ 38,858	150183	\$ 5,765	150206	\$ 317
150896	\$ 37,096	150207	\$ 4,043	150186	\$ 262
150066	\$ 35,873	150181	\$ 3,926	150195	\$ 212
150185	\$ 32,367	150894	\$ 2,332	150187	\$ 203
150895	\$ 31,135	150729	\$ 1,675	3446	\$ 156
150212	\$ 26,312	150730	\$ 1,613	150728	\$ 116
301B	\$ 20,585	150201	\$ 1,567	150198	\$ 114
3018	\$ 20,002	150068	\$ 1,427	3445	\$ 30



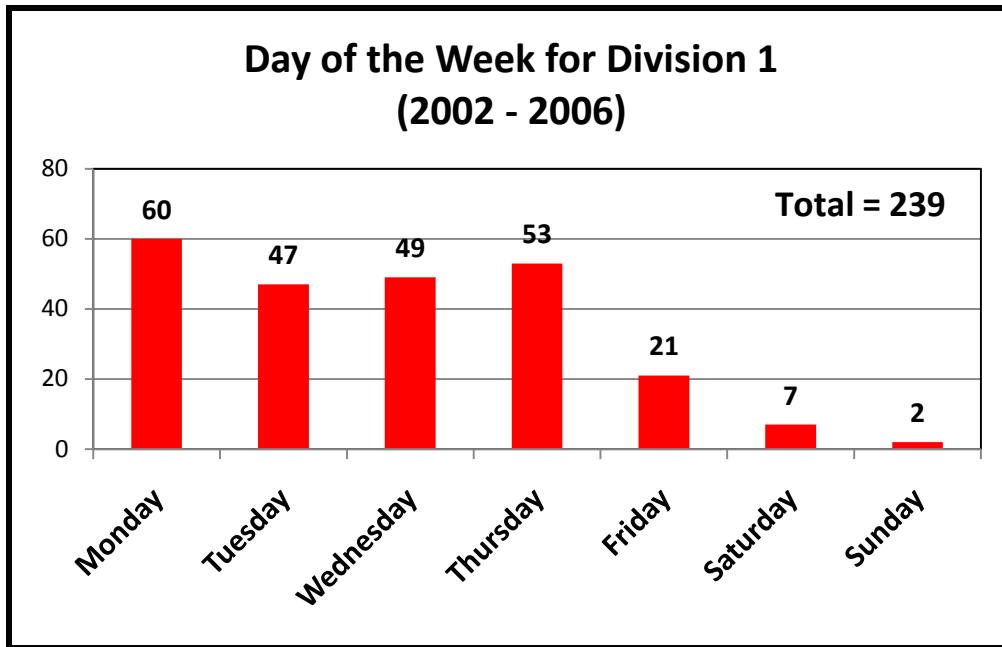
5. Time of the Day

Time of the day analysis reflects all incidents that occurred in Division 1 in six different time groups. Most incidents occurred in the morning between the hours of 9 AM to 11 AM with a total of 62 incidents, while 1 PM to 3 PM had second most incidents of 53. There were 12 incidents that occurred after 5 PM.



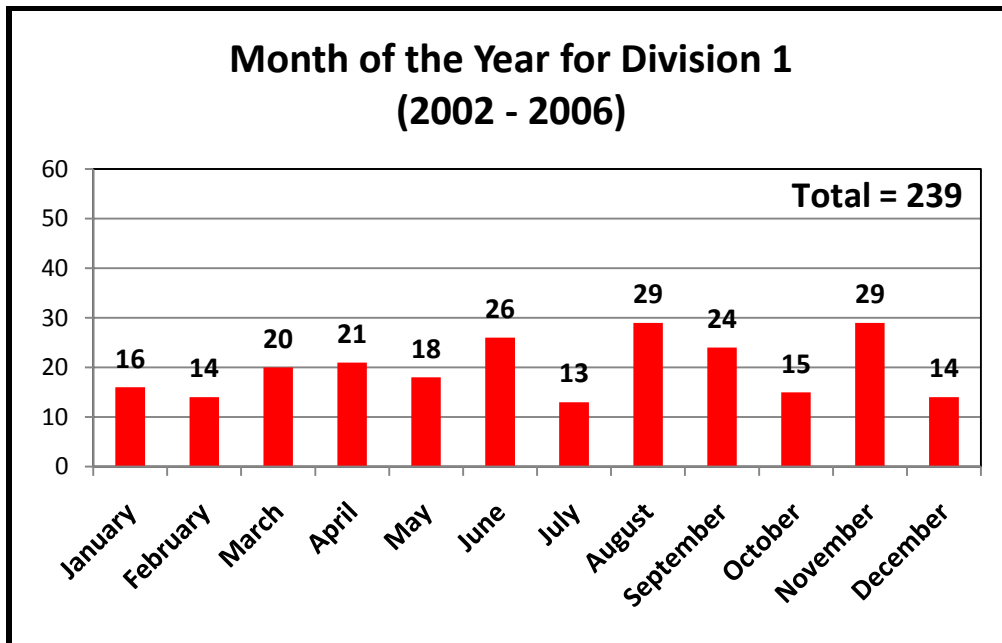
6. Day of the Week

Total of 60 incidents occurred on Monday as can be seen from the graph below. Thursday and Wednesday registered second and third place in the number of incidents occurrence with 53 and 49, respectively.



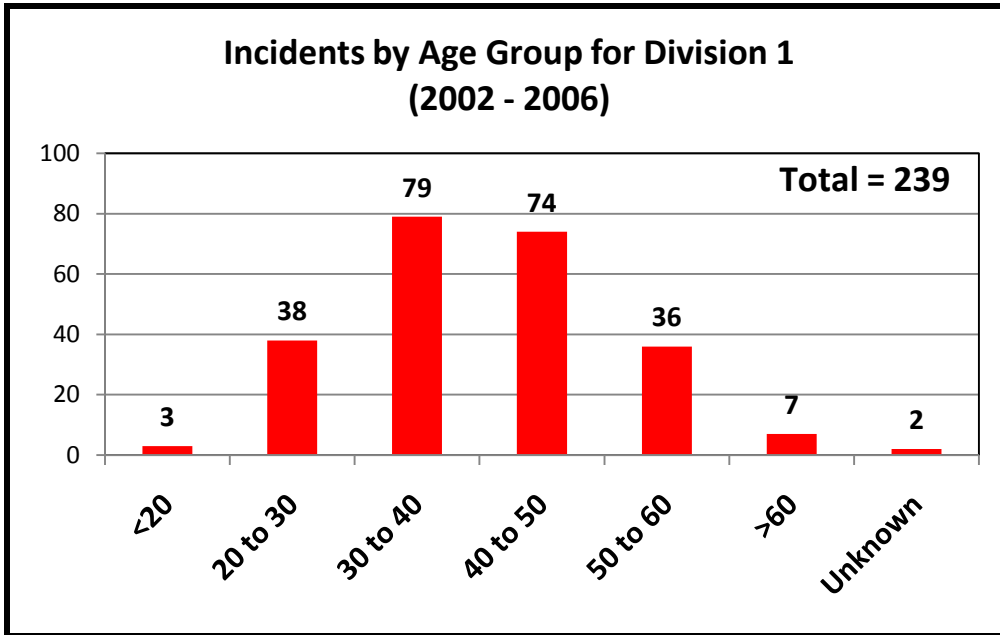
7. Month of the Year

In analyzing incidents by month of the year, August and November recorded the most incidents with a total of 29 each. Second and third greatest amounts were in June and September with 26 and 24, respectively. July had the least number of incidents with 13.



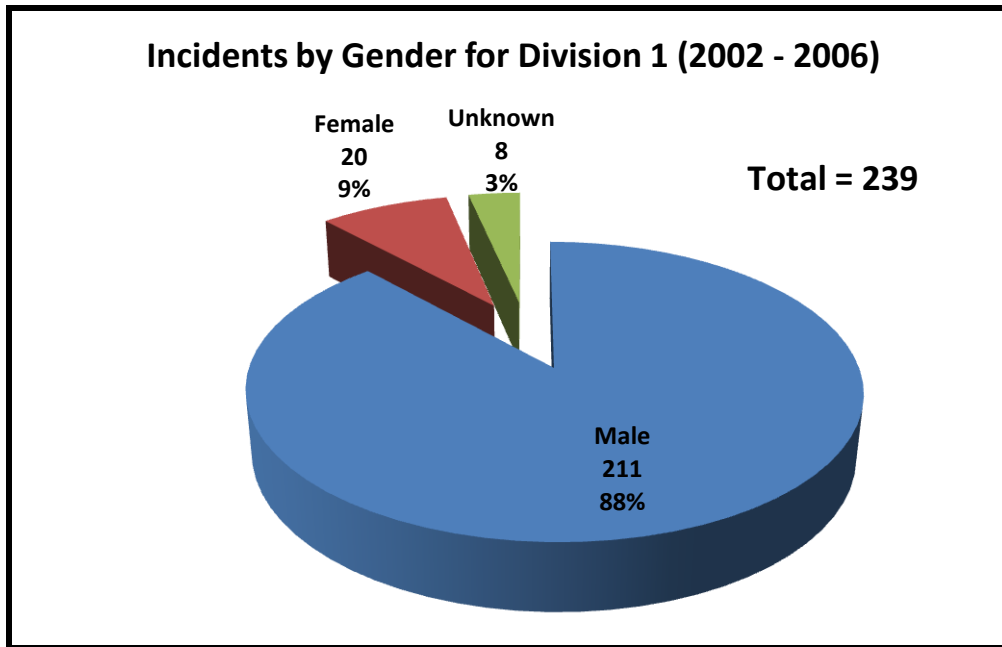
8. Incidents by Age Group

The graph below displays the incidents separated into different age groups for each division. Ages 30 to 40 years had the greatest amount of incidents with 79. The second greatest number of incidents occurred in the 40 to 50 year old group with a total of 74. The least number of incidents occurred in the unknown category with 2 incidents.



9. Incidents by Gender

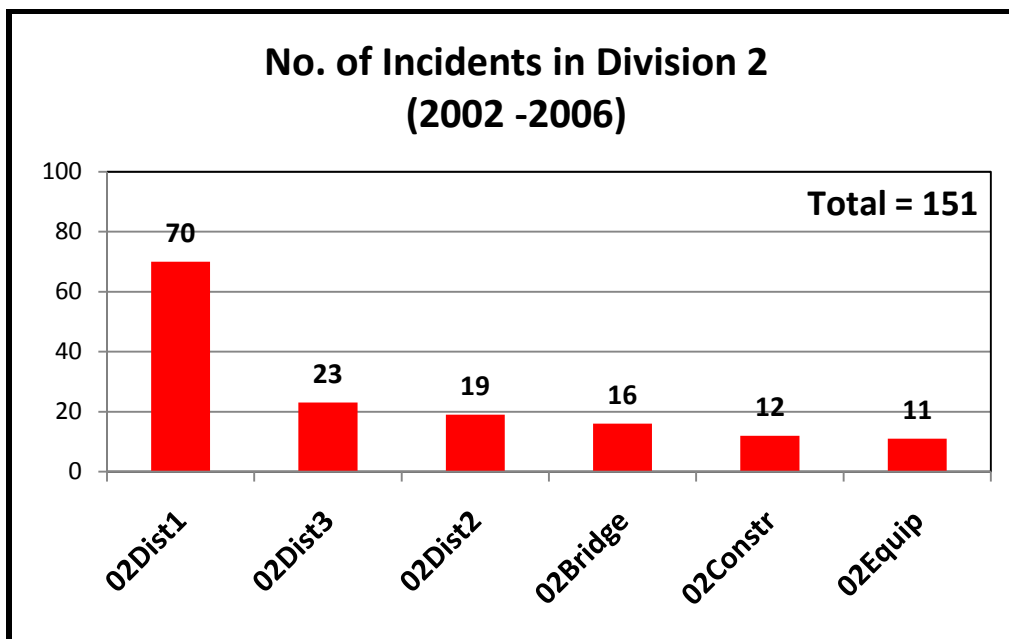
The graph below displays the gender breakdown for each division. The chart shows that 88% of men are involved in the incidents, followed by 9% involving females. The remaining percentage is in the unknown category with 3%.



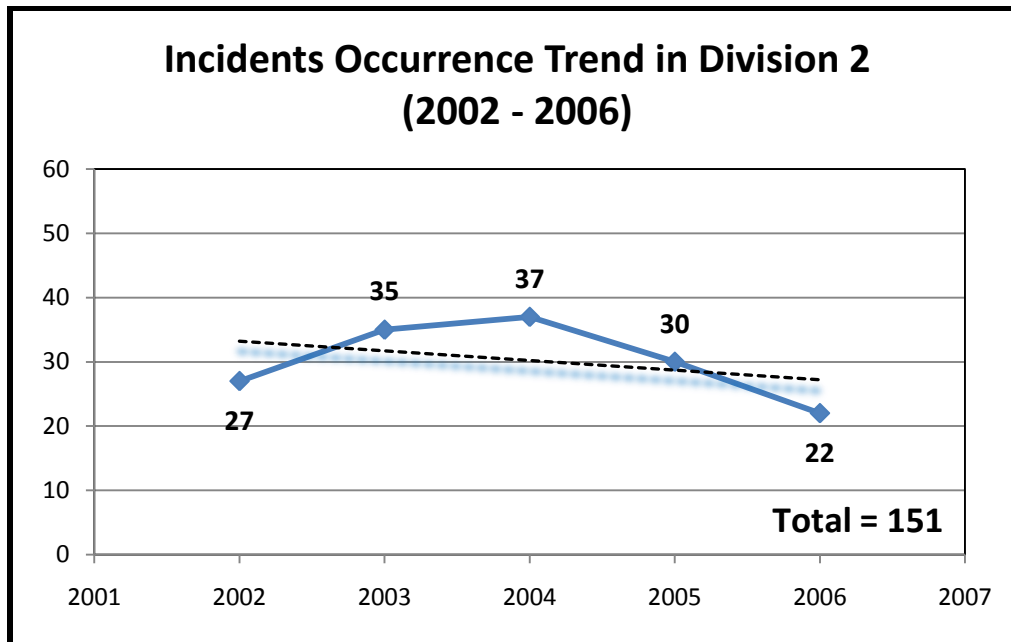
DIVISION 2

1. Number of Incidents

According to the analysis from the database, the total numbers of incidents for Division 2 from 2002-2006 in each office totaled 151 incidents. District 1 had the most incidents with 70, while District 3 and District 2 followed with 23 and 19 incidents. The Equipment Office had least incidents of 11 during the study period. Yearly incident graph below reflects the trend of incidents in Division 2 during the study period.

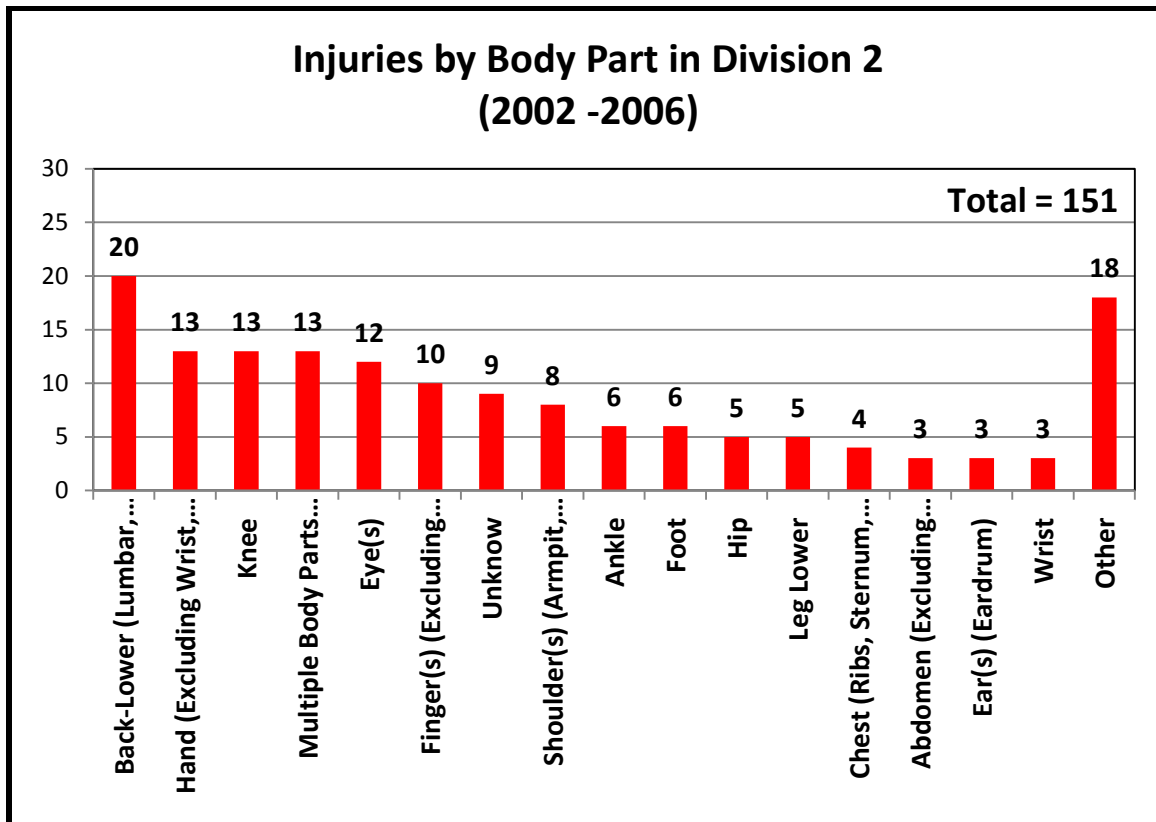


The graph below shows the number of incidents broken down into the 2002-2006 period for Division 2. The graph seems to have a fairly constant descending trend line. It starts at 27 incidents in 2002, increases in 2003-2005. It drops back down to 22 incidents in 2006.



2. Number of Injuries by Body Part

The analysis by body part reflects the parts of the body affected during each incident in Division 2 and other offices and districts. The greatest number of injuries affected one's "lower back" with total count of 20. A graphical representation of the number of incidents by body part can be seen below. Table lists remaining body parts grouped as "Other."



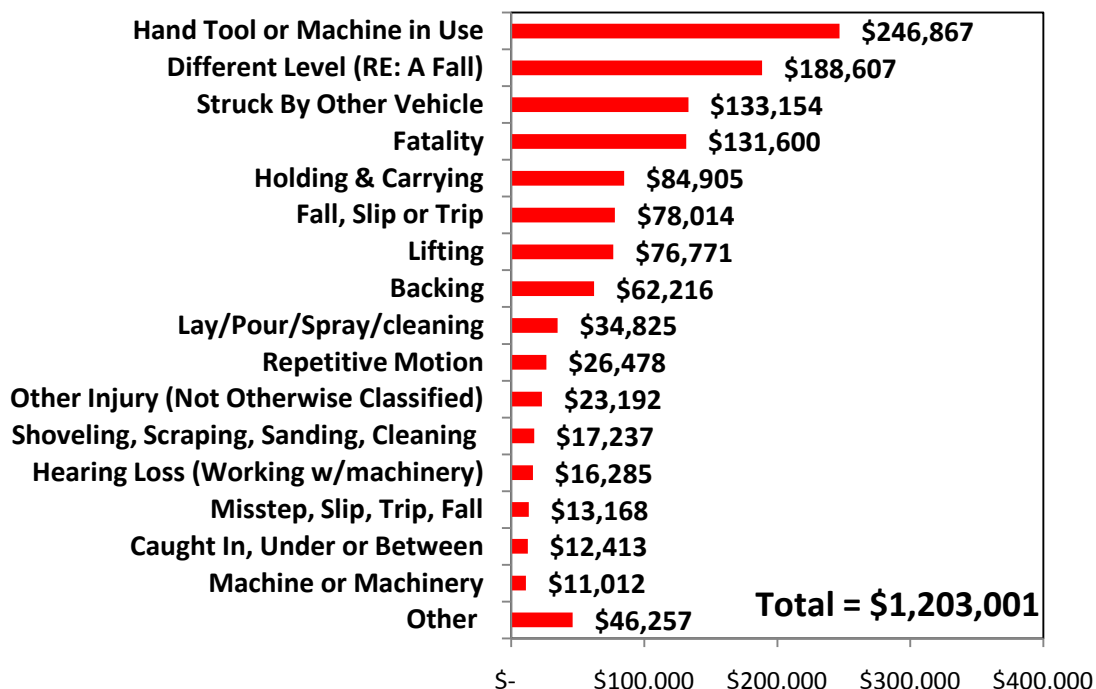
Other Body Parts

Elbow (Radial Head)	Upper Arm (Humerus)
Head (Multiple Injuries; Combination of Parts)	Internal Organs (Other Than Heart, Lungs)
Lower Arm (Forearm)	Lower Extremities (Legs, Multiple Parts)
Neck (Multiple Injuries; Combination of Parts)	Nose (Includes Nasal Passage, Sense of Smell)
Thigh, Upper Leg	Wrist(s) & Hand(s)
Thumb	

3. Dollar Loss by Cause of Injuries

From the database, the following information about dollar loss by cause of incidents was analyzed and the resultant cause of expense was also picked up. In summary, of the highest and the lowest cause of expense, hand tool or machine in use accounted for \$246,867 followed by incidents that resulted different levels or a fall, which accounted for \$188,607 and \$133,154. Among the lowest cause of incidents by dollar loss were, results from being caught in, under, or in between, and machine/machinery with \$12,413 and \$11,012, respectively. A detail graphical representation can be seen on chart below. Table below includes miscellaneous causes of injuries labeled as “Other.”

Dollar Loss by Cause in Division 2 (2002 - 2006)



Other Causes of Injuries

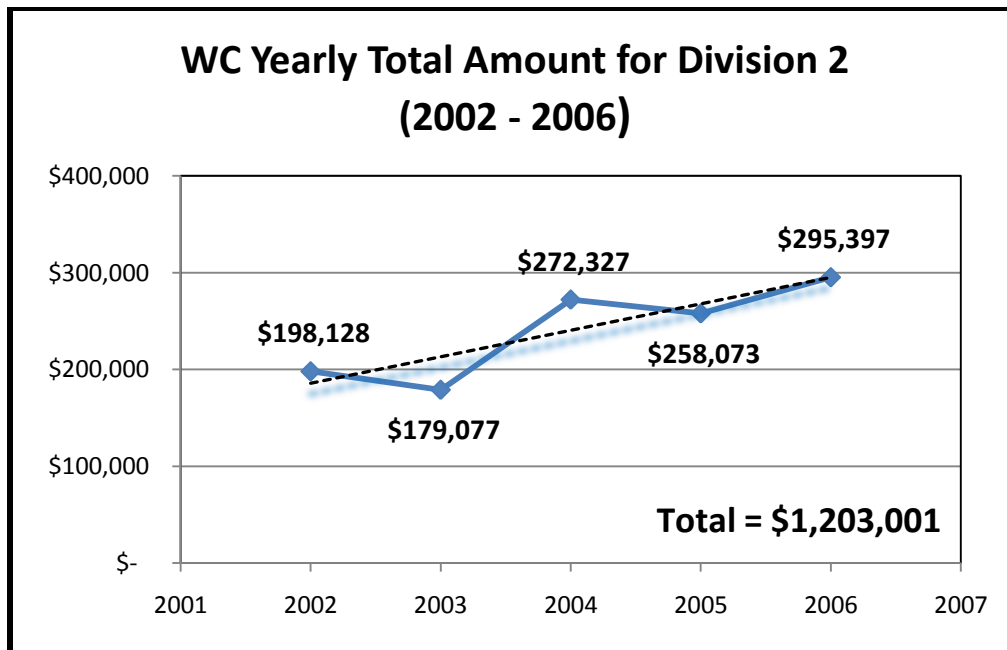
Cause	Amount	Cause	Amount
Falling, Rolling or Flying Object	\$ 7,583	Collision with Another Vehicle	\$ 734
Overtaken or Thrown from Machinery	\$ 6,849	Puncture Wound	\$ 475
Object Being Lifted or Handled	\$ 5,808	Unknown	\$ 403
Pushing or Pulling	\$ 5,713	Hit Stationary Object	\$ 339
Hand Tool, Utensil (Not Powered)	\$ 5,319	Climbing or Stepping Up/Down	\$ 269
Cut, Puncture, Scrape	\$ 3,368	Bending	\$ 252
Burns	\$ 1,560	Collapsing Matels (Eath Slides)	\$ 196
Foreign Body in Eye	\$ 1,353	Broken Mirrors	\$ 141
Rear End Collision	\$ 1,298	Walking	\$ 135
Dust, Gases, Fumes, or Vapors	\$ 1,158	Struck By Object	\$ 125
Struck Other Object	\$ 1,111	Welding Flash - Injury in Eyes	\$ 94
Equipment Failure	\$ 987	Chemicals (e.g., Picked Battery)	\$ 83
Animal or Insect	\$ 903		

4. Dollar Loss for All Claims

The total dollar loss by all workers compensation claims signifies all claims that resulted from incidents during the study period. From 2002 to 2006, the total dollar loss by all WC claims for Division 2 was \$1.2 million. Table below summarizes each department in Division 2 with

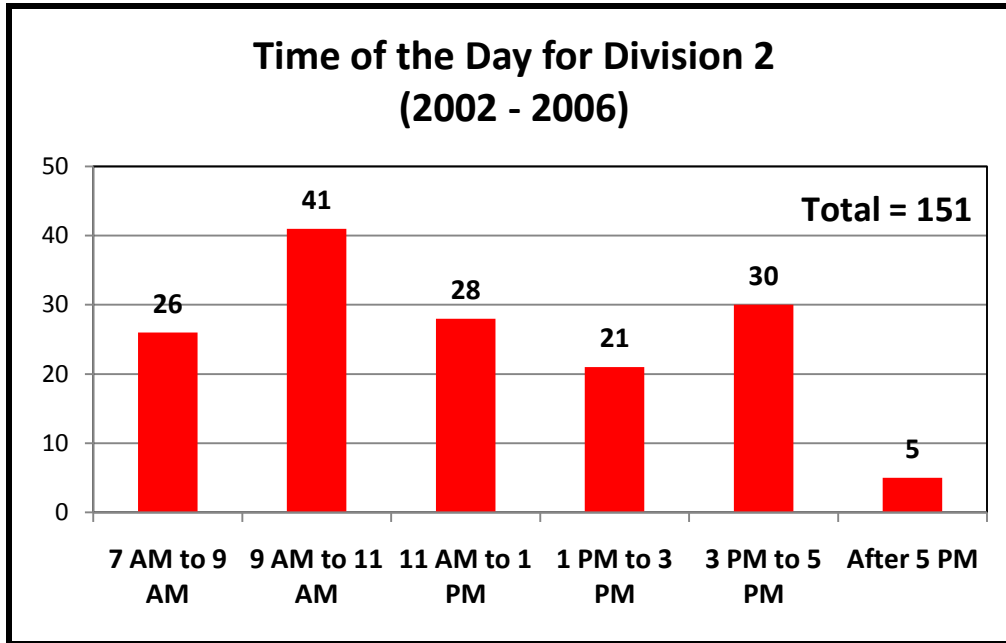
the total amount of dollar loss in descending order. Using the check date, the total dollar loss amount of \$1,203,001 is broken out by each year, as shown on the graph with slight upward trend.

Dollar Loss by All WC Claims (2002 – 2006) Division 2 Total = \$1,203,001			
Dept.	Amount	Dept.	Amount
02Dist 1	\$ 380,502	150227	\$ 4,714
3023	\$ 242,623	150228	\$ 4,608
150214	\$ 136,329	150738	\$ 4,129
150215	\$ 126,230	150217	\$ 3,624
150234	\$ 64,658	150734	\$ 2,612
302B	\$ 58,815	150220	\$ 2,190
150232	\$ 45,844	150235	\$ 2,032
150219	\$ 34,196	150225	\$ 1,050
150221	\$ 22,880	150236	\$ 929
150737	\$ 12,274	150213	\$ 888
3022	\$ 11,992	150735	\$ 495
150072	\$ 10,671	150231	\$ 454
150222	\$ 10,292	150230	\$ 397
150736	\$ 6,792	150226	\$ 243
150223	\$ 5,449	150233	\$ 60
150218	\$ 5,026		



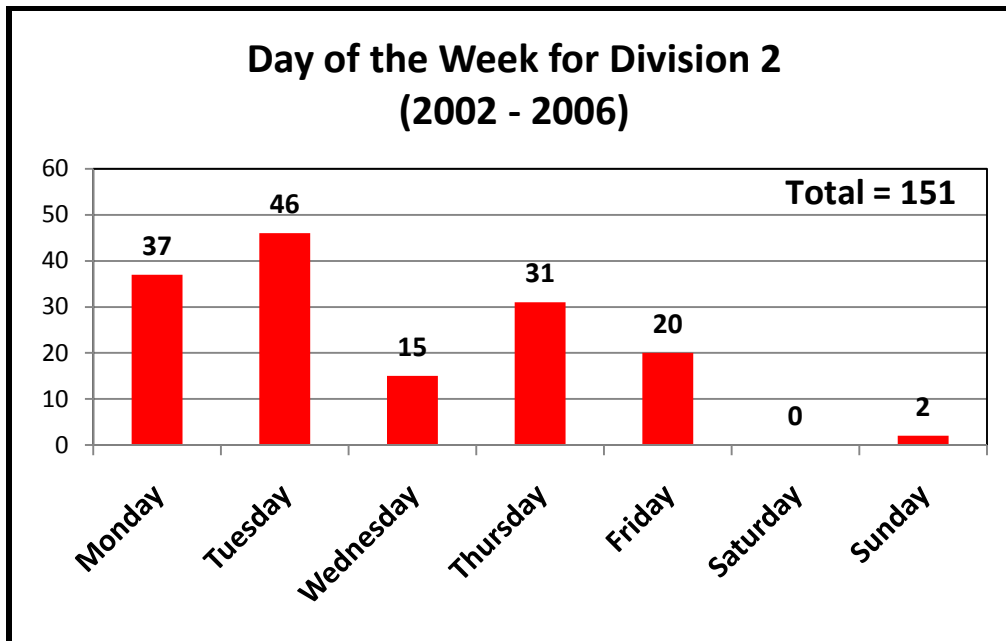
5. Time of the Day

Time of the day analysis reflects all incidents that occurred in Division 2 in six different time groups. Most incidents occurred during the morning hours between 9 AM to 11 AM with a total of 41 incidents, while 3 PM to 5 PM had second most incidents of 30. There were 5 incidents that occurred after 5 PM.



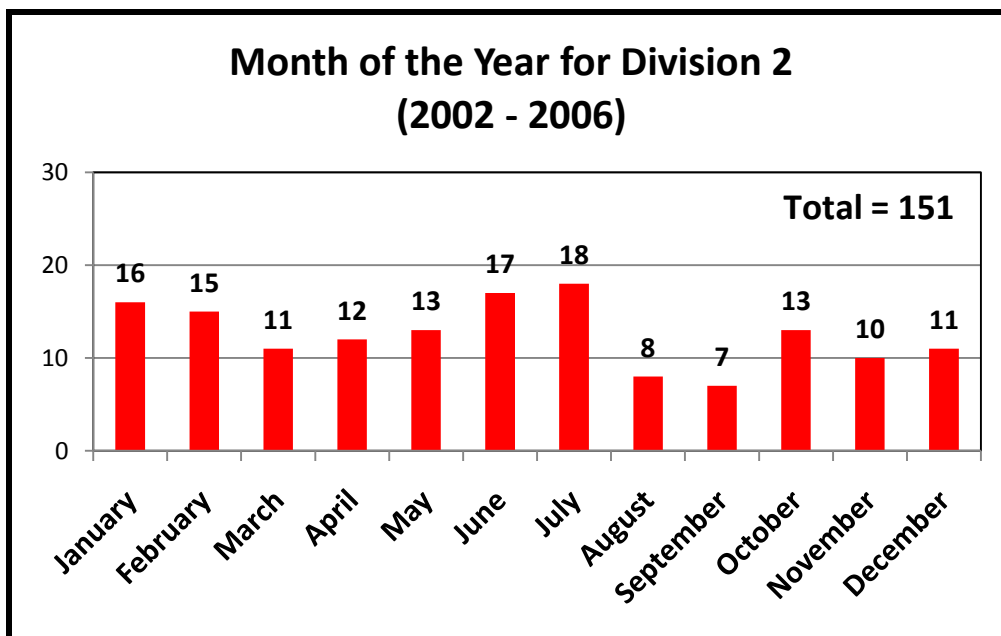
6. Day of the week

The greatest number of incidents with a total of 46 incidents occurred on Tuesday, as can be seen from the graph. Monday and Thursday registered second and third place in the number of incidents occurrence with 37 and 31, respectively.



7. Month of the year

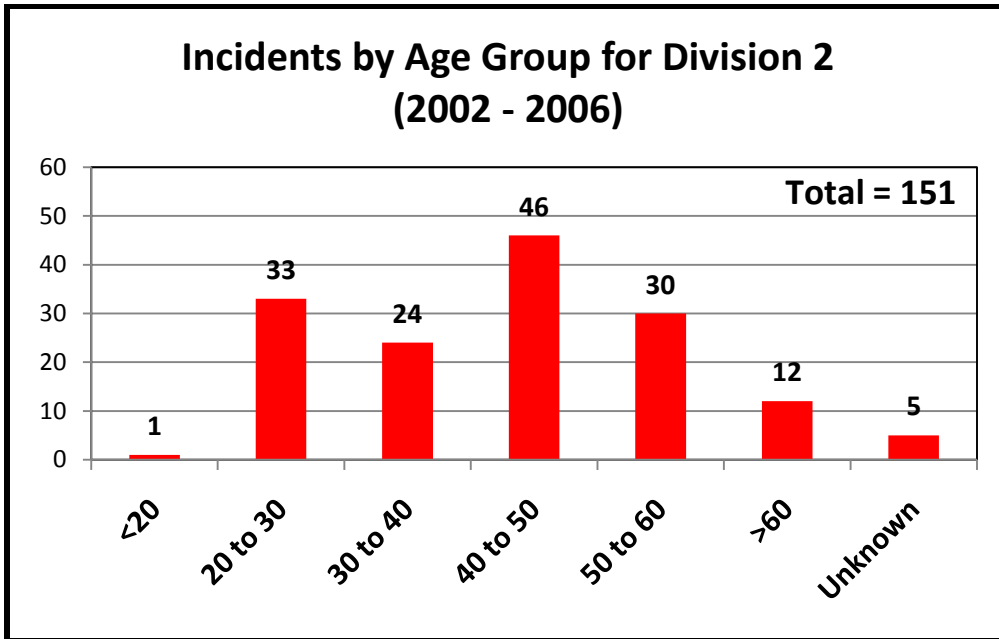
In analyzing incidents by month of the year, July recorded the most incidents with a total of 18 incidents. Second and third greatest amounts were in June and January with 17 and 16, respectively. September had the least number of incidents with a total of 7.



8. Incidents by Age Group

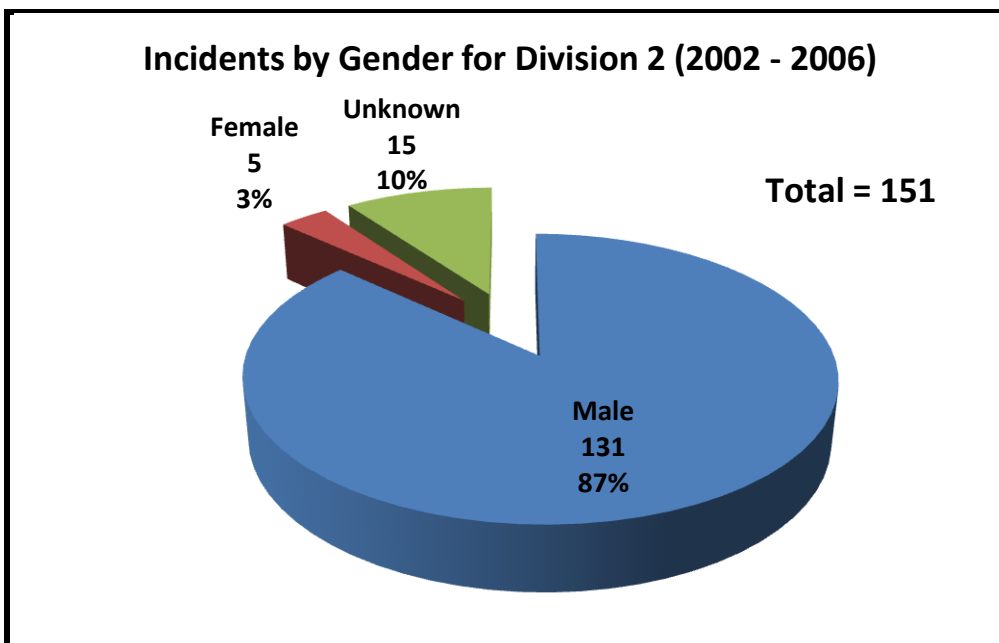
The graph below displays the incidents separated into different age groups for each division. Ages 40 to 50 years had the greatest amount of incidents with 46. The second greatest

number of incidents occurred in the 20 to 30 year old group with a total of 33. The least number of incidents occurred in the less than 20 years old category with 1 incident.



9. Incidents by Gender

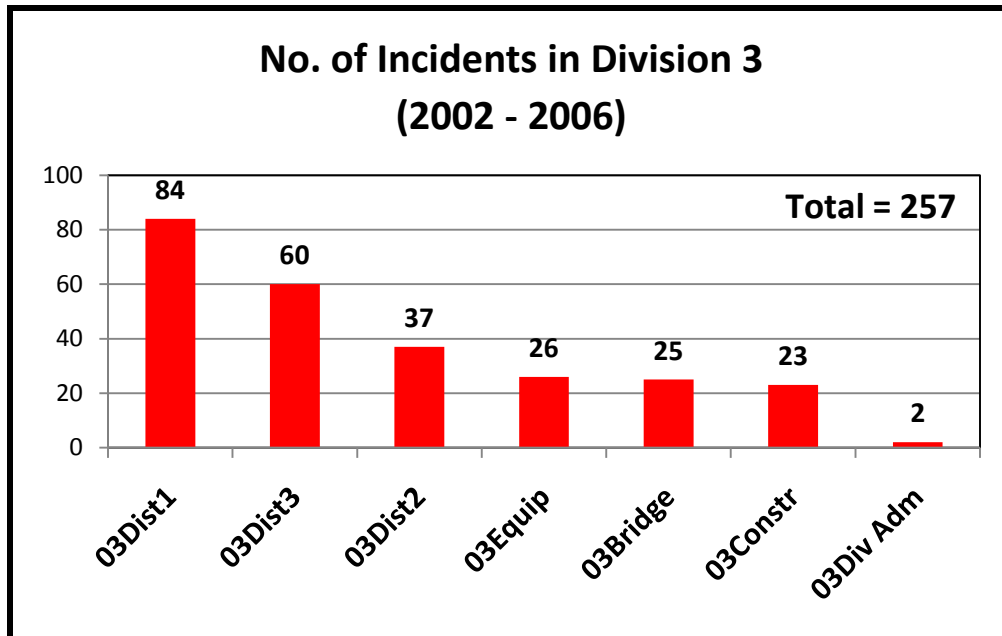
The graph below displays the gender breakdown for each division. The chart shows that 87% of men are involved in the incidents; followed by 10% in the unknown category. The remaining percentage involved females with 3%.



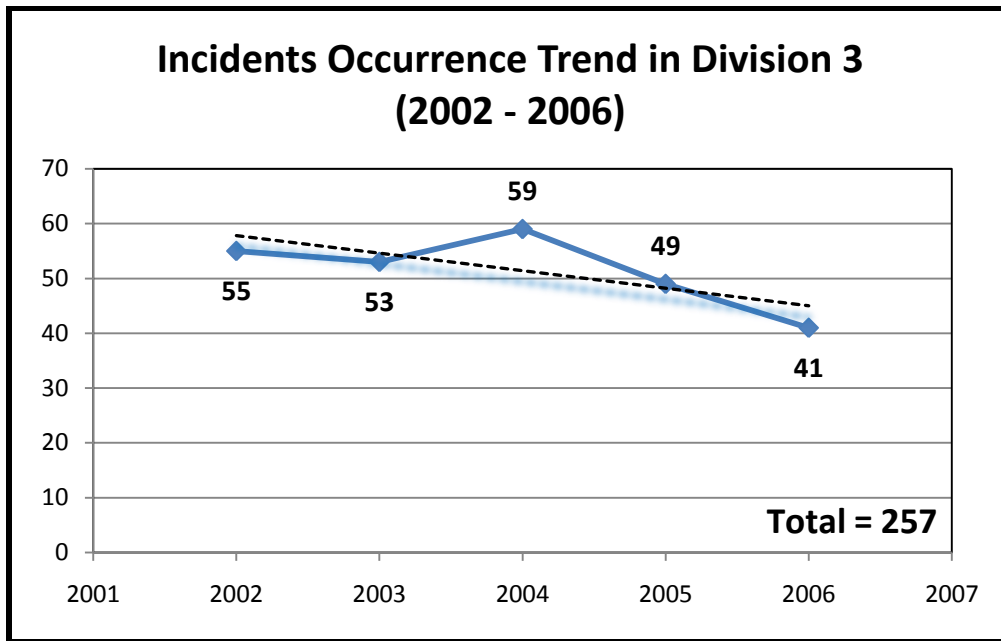
DIVISION 3

1. Number of Incidents

According to the analysis from the database, the total numbers of incidents for Division 3 from 2002-2006 in each office totaled 257 incidents. District 1 had the most incidents with 84 incidents, while District 3 and District 2 followed with 60 and 37 incidents. The Equipment office had 26 incidents, Bridge with 25, and Construction with 23 incidents. The Administration department had the least incidents of 2.

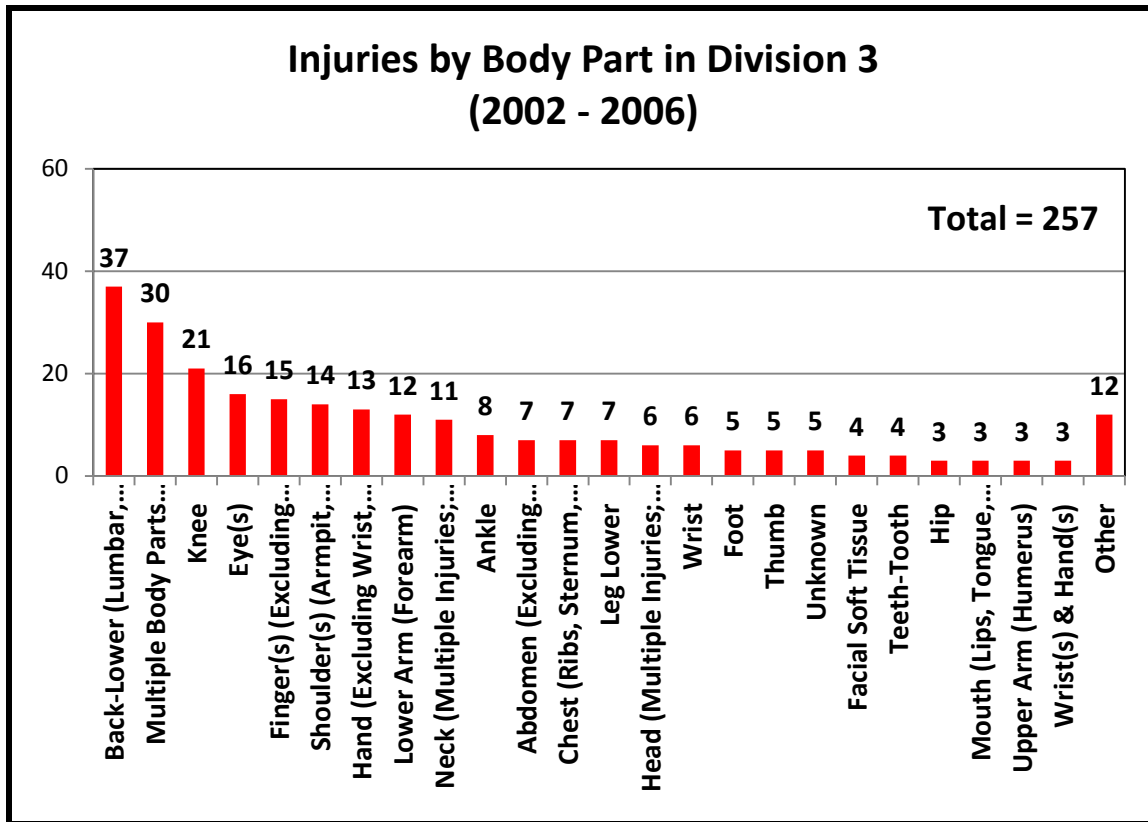


The graph below shows the number of incidents broken down into the 2002-2006 period for Division 3. The graph seems to have a fairly constant descending trend line. It starts at 55 incidents in 2002, decreases in 2003. Then the graph increases in 2004, but then decreases from 59 to 49 incidents in 2005. It continues to drop to 41 incidents in 2006.



2. Number of Injuries by Body Part

The analysis by body part reflects the parts of the body affected during each incident in Division 3 and other offices and districts. The greatest number of injuries affected one's lower back with total count of 37, followed by multiple body parts and knees with 30 and 21, respectively. A graphical representation of the number of incidents by body part can be seen below. Table lists remaining body parts grouped as "Other."



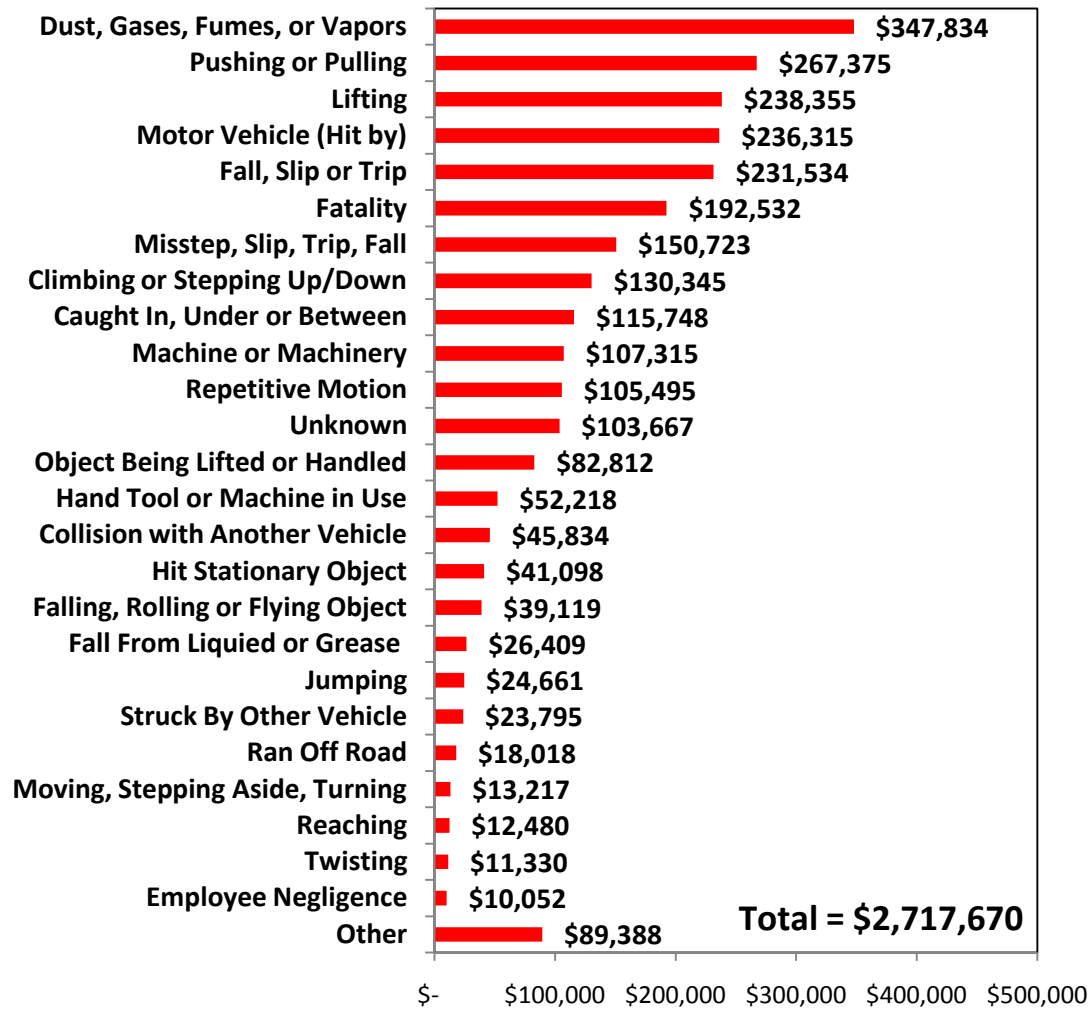
Other Body Parts

Back-Upper (Cervical, Thoracic Area)	Ear(s) (Eardrum)
Buttocks	Facial Bones
Elbow (Radial Head)	Thigh, Upper Leg
Nose (Includes Nasal Passage, Sense of Smell)	Toe(s)

3. Dollar Loss by Cause of Injuries

From the database, the following information about dollar loss by cause of incidents was analyzed and the resultant cause of expense was also picked up. In summary, of the highest and the lowest cause of expense, dust, gases, fumes, or vapors accounted for \$347,834, followed by incidents that resulted from pushing or pulling, which accounted for \$267,375 and \$238,355, respectively. Among the lowest cause of incidents by dollar loss were, results from twisting, and employee negligence with \$11,330 and \$10,052, respectively. A detail graphical representation can be seen on chart below. Table below includes miscellaneous causes of injuries labeled as “Other.”

Dollar Loss by Cause in Division 3 (2002 - 2006)



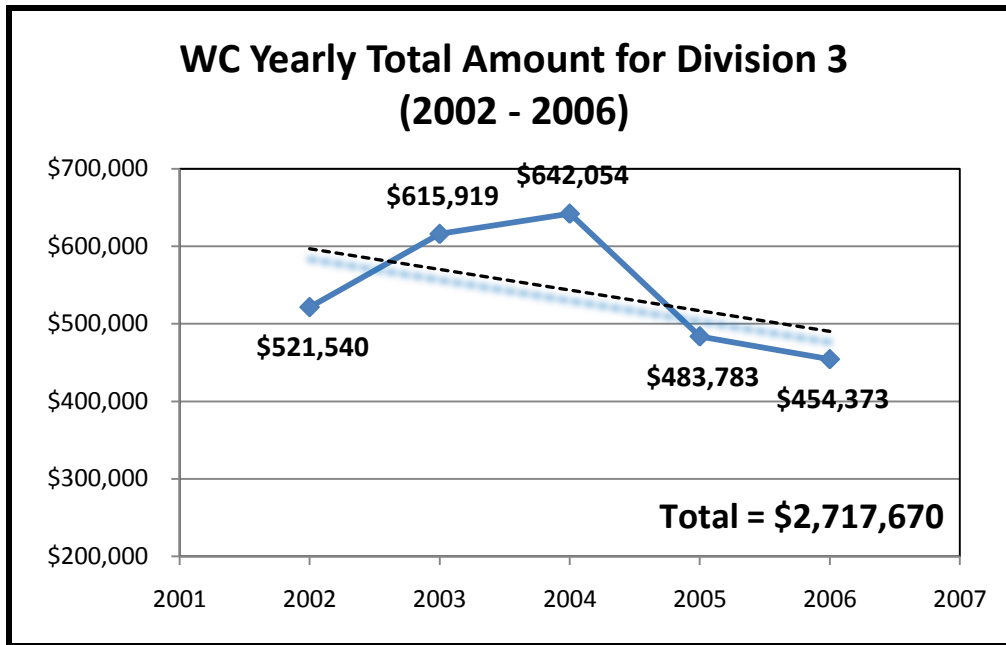
Other Causes of Injuries

Cause	Amount	Cause	Amount
Rear End Collision	9,010	Overtaken	\$ 1,338
Digging/Drilling	8228	Backing	\$ 1,298
Animal or Insect	7949	Struck Other Vehicle	\$ 1,276
Bending	7722	Cumulative Injury	\$ 1,190
Dizzy, Fainted, Passed Out	6087	Hand Tool, Utensil (Not Powered)	\$ 1,190
Cut, Puncture, Scrape	5591	Struck By Object	\$ 1,092
Other External Factors	4918	Powered Hand Tool, Appliance	\$ 845
Hearing Loss (Working w/Machinery)	4846	Robbery or Criminal Assault	\$ 549
Shoveling, Scraping, Sanding, Cleaning	4836	Slipped, Did Not Fall Foot	\$ 448
Struck Other Object	3786	Walking	\$ 375
Foreign Body in Eye	3025	Puncture Wound	\$ 340
Fall From Different Level	2704	Holding & Carrying	\$ 243
Driving/Riding	2371	Chemicals (e.g Picked Battery)	\$ 212
Allergic Reaction/Rash	2075	Not Applicable	\$ 107
Procedure Factors	2018	Explosion or Flare Back	\$ 91
Burns	1837	Different Level (RE: A Fall)	\$ 49
Contact with Poison Ivy/Oak	1741		

4. Dollar Loss for All Claims

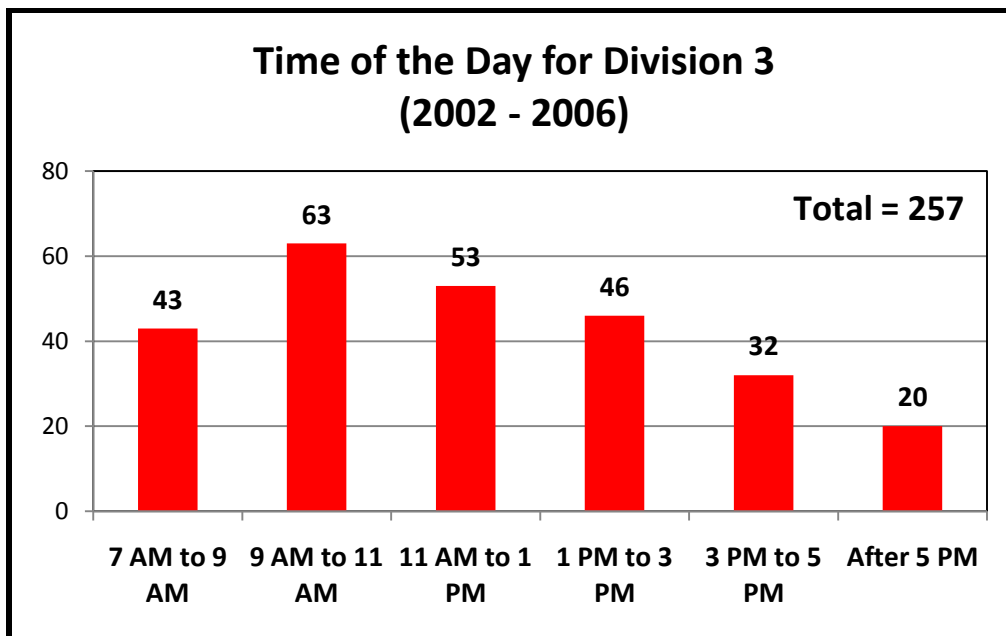
The dollar loss by all workers compensation claims signifies all claims that resulted from incidents during the study period. From 2002 to 2006, the total dollar loss by all WC claims for Division 3 was \$2.7 million. Table below summarizes each department in Division 3 with the total amount of dollar loss in descending order. Using the check date, the total dollar loss amount of \$2,717,670 is broken out by each year, as shown on the graph with gradual descending trend.

Dollar Loss by All WC Claims (2002 – 2006)			
Division 3			
Total = \$2,717,670			
Dept.	Amount	Dept.	Amount
303B	\$ 576,438	150253	\$ 16,036
150254	\$ 406,081	150261	\$ 11,070
3033	\$ 283,827	150239	\$ 7,017
150244	\$ 258,779	150251	\$ 6,536
150245	\$ 246,583	150258	\$ 4,391
3032	\$ 169,578	150249	\$ 3,592
150238	\$ 164,844	150259	\$ 2,357
150742	\$ 156,501	150743	\$ 1,525
150257	\$ 104,589	150247	\$ 1,354
150260	\$ 75,668	150747	\$ 754
150255	\$ 74,298	150745	\$ 633
150075	\$ 50,847	150746	\$ 390
150242	\$ 43,380	150250	\$ 322
150241	\$ 27,775	150237	\$ 185
03Dist 1	\$ 22,180	150076	\$ 142



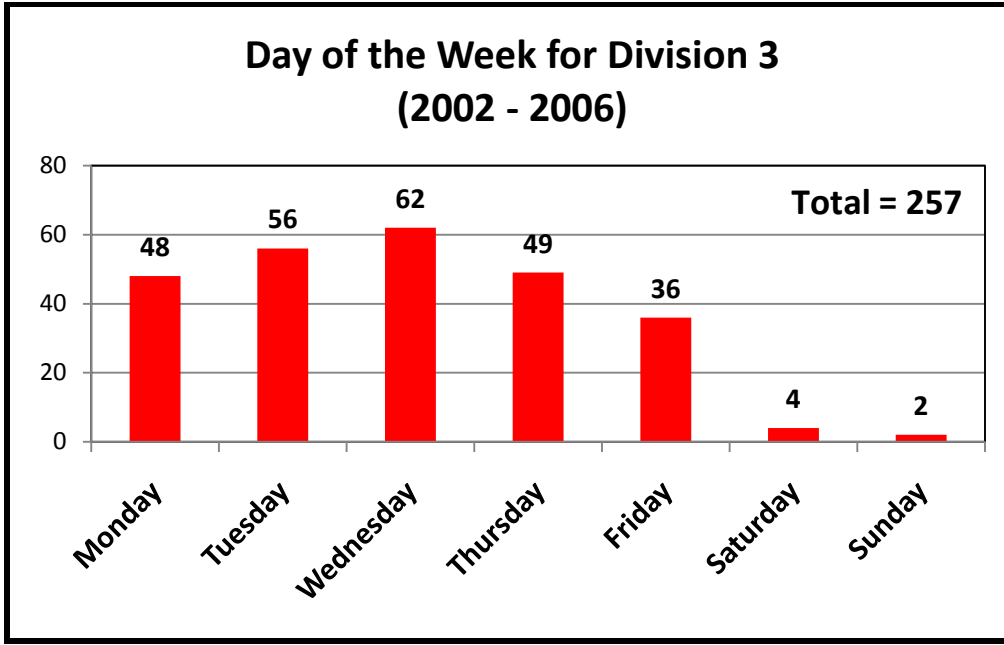
5. Time of the Day

Time of the day analysis reflects all incidents that occurred in Division 3 in six different time groups. Most incidents occurred during the morning hours between 9 AM to 11 AM with a total of 63 incidents, while 11 AM to 1 PM had second most incidents of 53. There were 20 incidents that occurred after 5 PM.



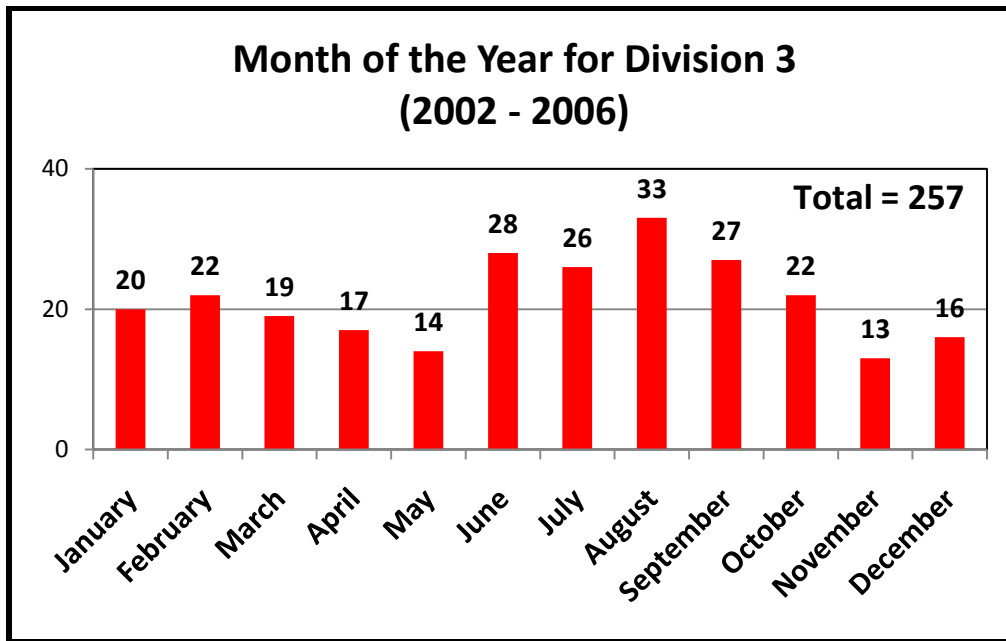
6. Day of the week

The greatest number of incidents with a total of 62 incidents occurred on Wednesday, as can be seen from the graph. Tuesday and Thursday registered second and third place in the number of incidents occurrence with 56 and 49, respectively.



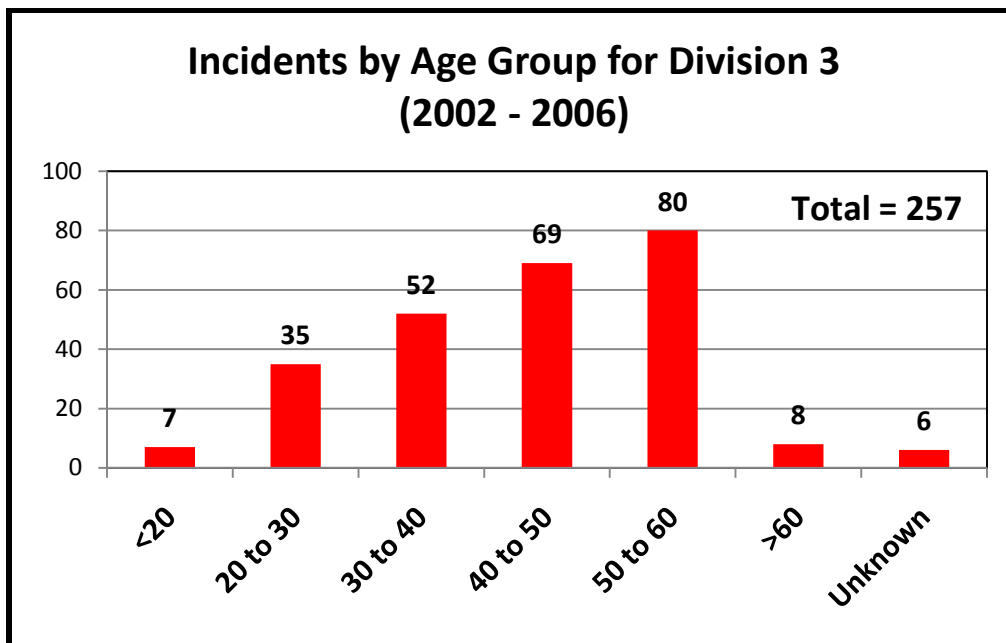
7. Month of the year

In analyzing incidents by month of the year, August recorded the most incidents with a total of 33 incidents. Second and third greatest amount were in June and September with 28 and 27, respectively. November had the least number of incidents with a total of 13.



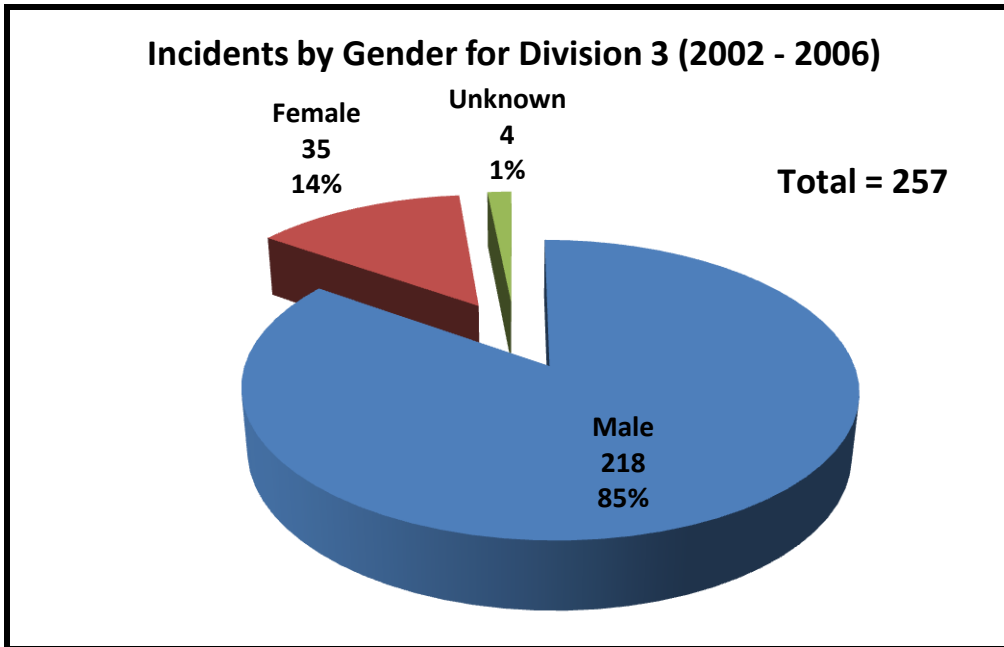
8. Incidents by Age Group

The graph below displays the incidents separated into different age groups for each division. Ages 50 to 60 years had the greatest amount of incidents with 80. The second greatest number of incidents occurred in the 40 to 50 year old group with a total of 69. The least number of incidents occurred in the unknown category with 6 incidents.



9. Incidents by Gender

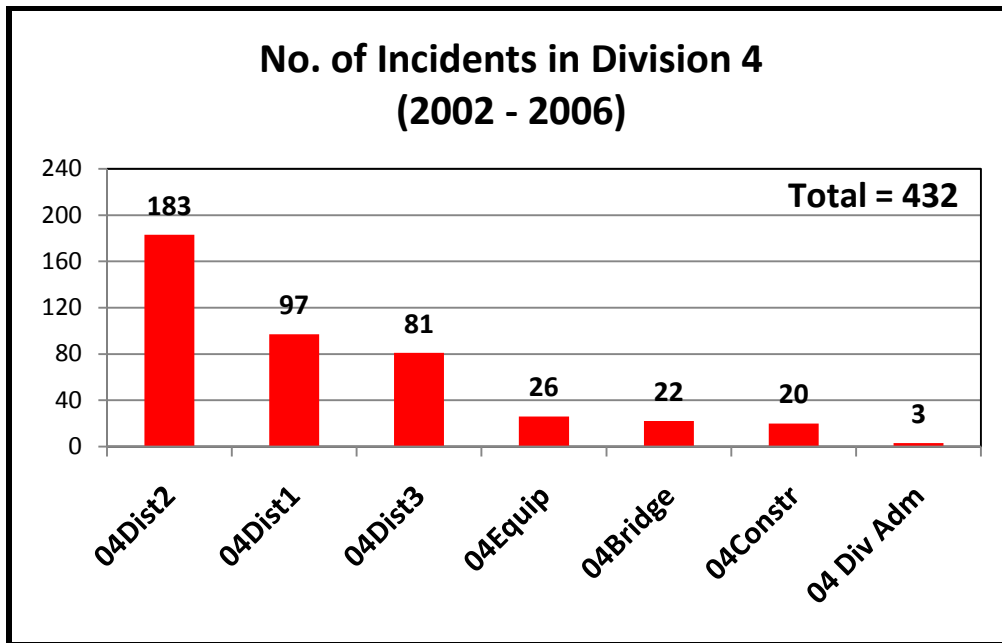
The graph below displays the gender breakdown for each division. The chart shows that 85% of men are involved in the incidents; followed by 14% involving females. The remaining percentage is in the unknown category with 1%.



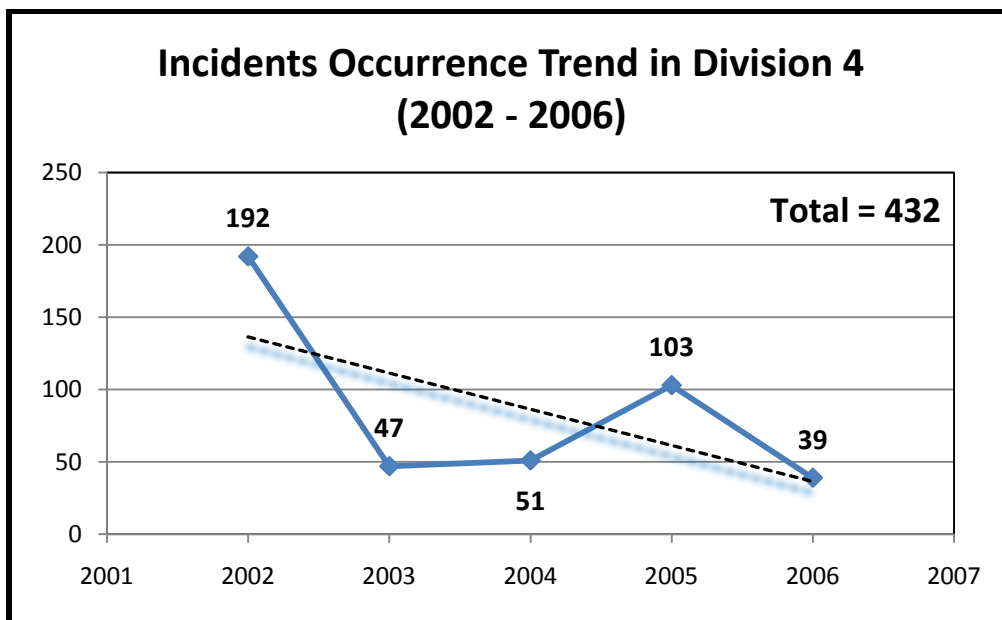
DIVISION 4

1. Number of Incidents

According to the analysis from the database, the total numbers of incidents for Division 4 from 2002-2006 in each office totaled 432 incidents. District 2 had the most incidents with 183 incidents, while District 1 and District 3 followed with 97 and 81 incidents. The Equipment office had 26 incidents, Bridge with 22, and Construction with 20 incidents. The Administration department had the least incidents with a total of 3.



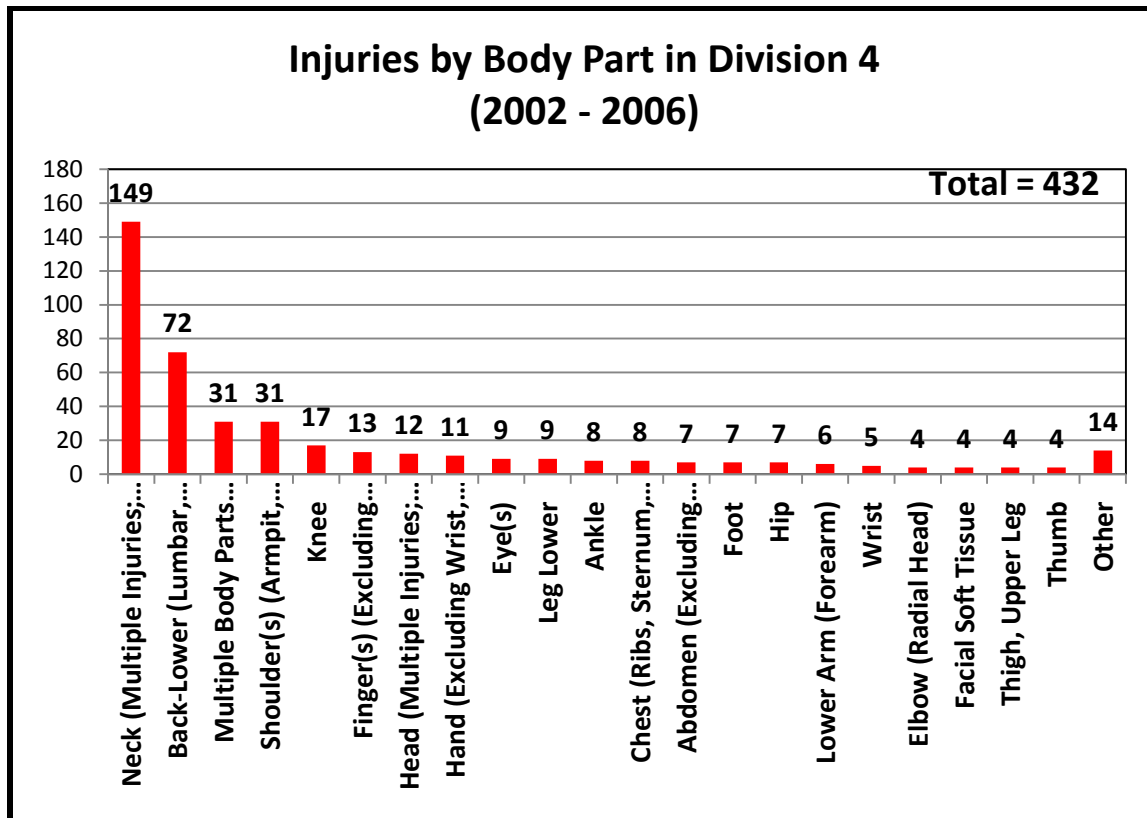
The graph below shows the number of incidents broken down into the 2002-2006 period for Division 4. The graph has a strong descent. It starts with 192 incidents in 2002, plummets in 2003 to 47 incidents. The graph starts to slowly increase between 2004 (51) and 2005 (103), but drops back down to 39 incidents in 2006.



2. Number of Injuries by Body Part

The analysis by body part reflects the parts of the body affected during each incident in Division 4 and other offices and districts. The greatest number of injuries affected one's neck with total count of 149, followed by lower back and multiple parts injured with 72 and 31,

respectively. A graphical representation of the number of incidents by body part can be seen below. Table lists remaining body parts grouped as “Other.”



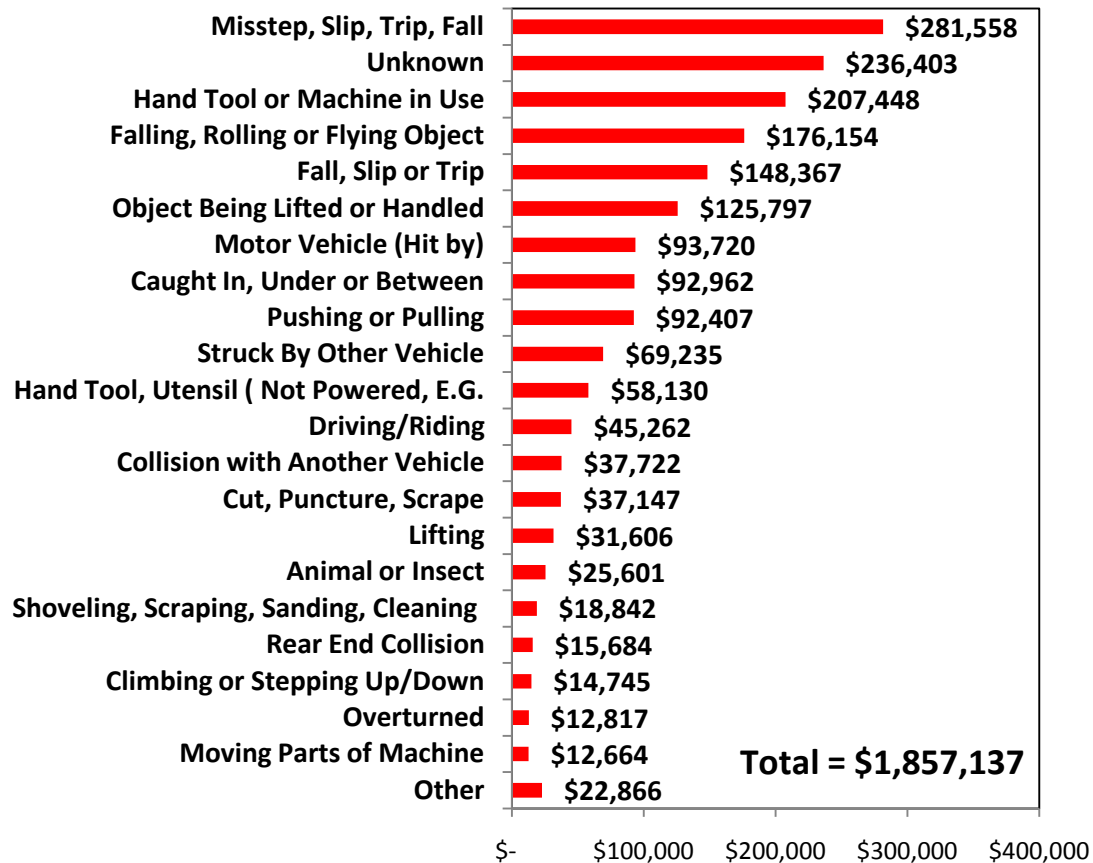
Other Body Parts

Nose (Includes Nasal Passage, Sense of Smell)	Teeth-Tooth
Ear(s) (Eardrum)	Toe(s)
Upper Arm (Humerus)	Unknown
Facial Bones	Upper Extremities (Multiple to Arms)
Lungs	Wrist(s) & Hand(s)

3. Dollar Loss by Cause of Injuries

From the database, the following information about dollar loss by cause of incidents was analyzed and the resultant cause of expense was also picked up. In summary, of the highest and the lowest cause of expense, misstep, slip, trip, fall accounted for \$281,558, followed by incidents that resulted from unknown sources or hand tool/machine in use, which accounted for \$236,403 and \$207,448. Among the lowest cause of incidents by dollar loss were, results from being overturned and moving parts of a machine with \$12,817 and \$12,664, respectively. A detail graphical representation can be seen on chart below. Table below includes miscellaneous causes of injuries labeled as “Other.”

Dollar Loss by Cause in Division 4 (2002 - 2006)



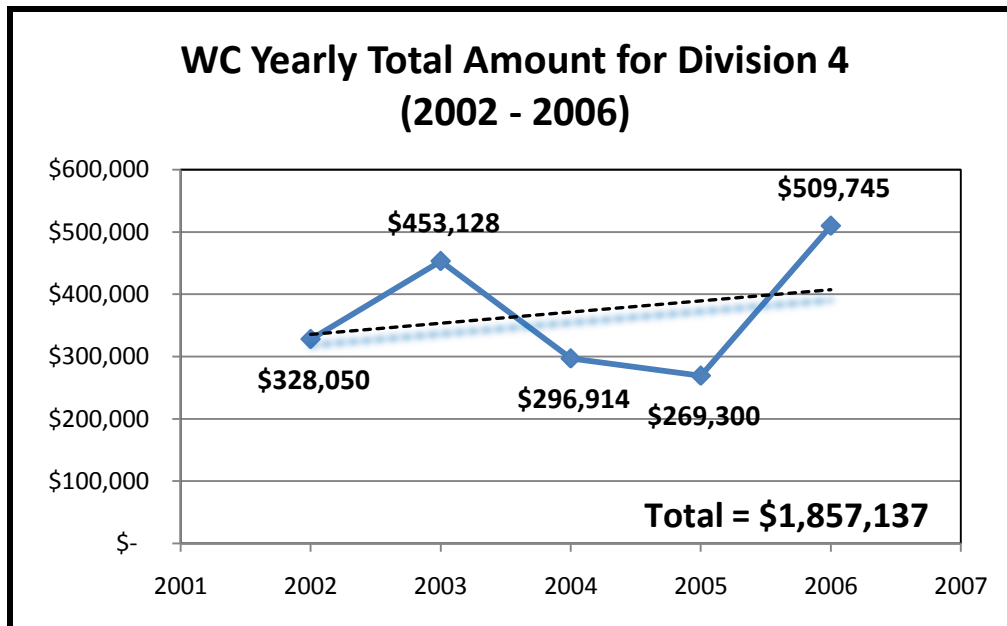
Other Causes of Injuries

Cause	Amount	Cause	Amount
Hit Stationary Object	\$ 5,460	Allergic Reaction/Rash	\$ 720
Ran Off Road	\$ 2,646	Other Injury (Not Otherwise Classified)	\$ 665
Machine or Machinery	\$ 2,364	Fall From Different Level	\$ 627
Heat Exhaustion	\$ 1,963	Dust, Gases, Fumes, or Vapors	\$ 481
Hearing Loss (Working w/machinery)	\$ 1,668	Contact with chemicals	\$ 359
Foreign Body in Eye	\$ 1,168	Struck Other Vehicle	\$ 214
Bending	\$ 1,155	Struck By Object	\$ 200
Twisting	\$ 1,111	Foreign Body in Ear	\$ 157
Contact with Poison Ivy/Oak	\$ 918	Burns	\$ 102
Moving, Stepping aside, Turning	\$ 818	Procedure Factors	\$ 69

4. Dollar Loss for All Claims

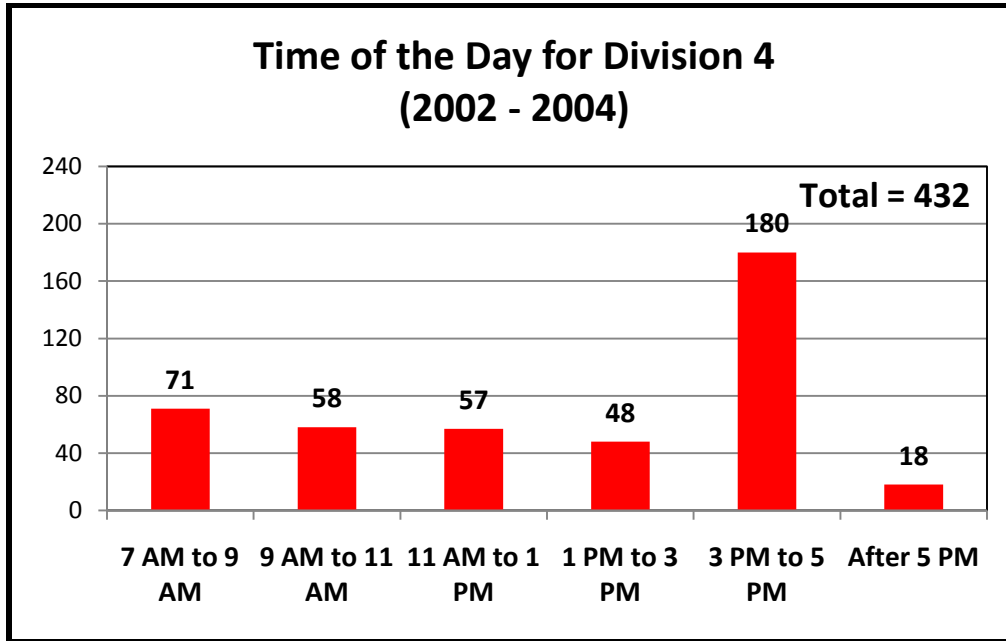
The dollar loss by all workers compensation claims signifies all claims that resulted from incidents during the study period. From 2002 to 2006, the total dollar loss by all WC claims for Division 4 was \$1.8 million. Table below summarizes each department in Division 4 with the total amount of dollar loss in descending order. Using the check date, the total dollar loss amount of \$1,857,137 is broken out by each year, as shown on the graph with a slight ascending trend.

Dollar Loss by All WC Claims (2002 – 2006) Division 4 Total = \$1,857,137			
Dept.	Amount	Dept.	Amount
3042	\$ 321,739	150264	\$ 12,083
04Dist1	\$ 234,252	150271	\$ 7,428
150280	\$ 201,912	150285	\$ 7,399
3043	\$ 191,545	150284	\$ 6,450
150279	\$ 188,414	150278	\$ 5,048
150269	\$ 145,636	150276	\$ 4,812
150749	\$ 133,612	150272	\$ 4,383
150282	\$ 106,138	150750	\$ 2,068
150270	\$ 91,827	150283	\$ 1,676
150263	\$ 61,755	150266	\$ 1,432
150267	\$ 32,684	150275	\$ 1,022
150751	\$ 26,691	150754	\$ 984
150273	\$ 18,800	150080	\$ 479
150752	\$ 17,267	150281	\$ 399
150755	\$ 14,609	150262	\$ 221
150753	\$ 14,377		



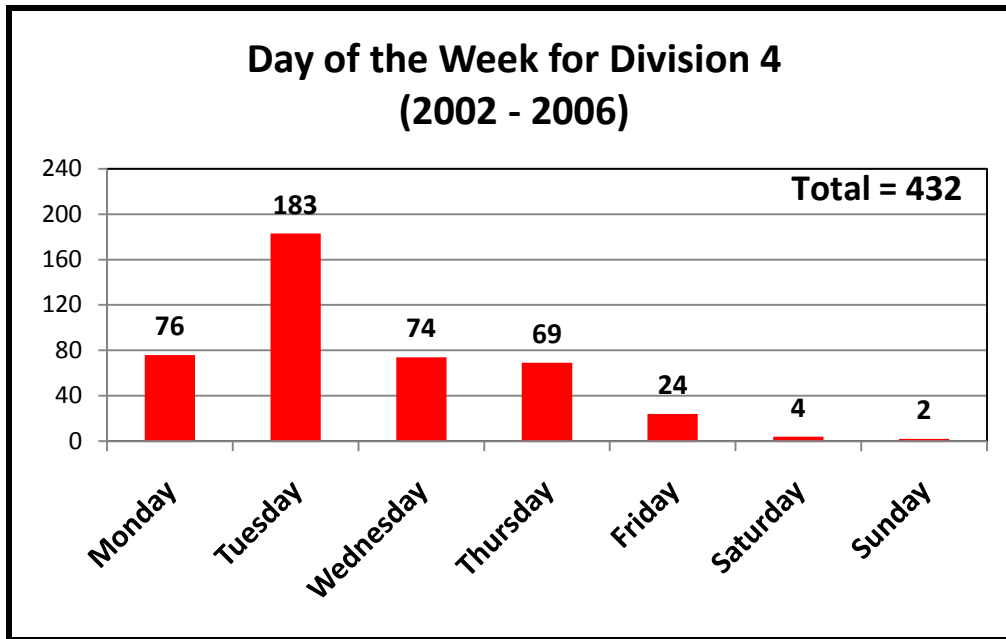
5. Time of the Day

Time of the day analysis reflects all incidents that occurred in Division 4 in six different time groups. Most incidents occurred during the afternoon hours between 3 PM to 5 PM with a total of 180 incidents, while 7 AM to 9 AM had second most incidents of 71. There were 18 incidents that occurred after 5 PM.



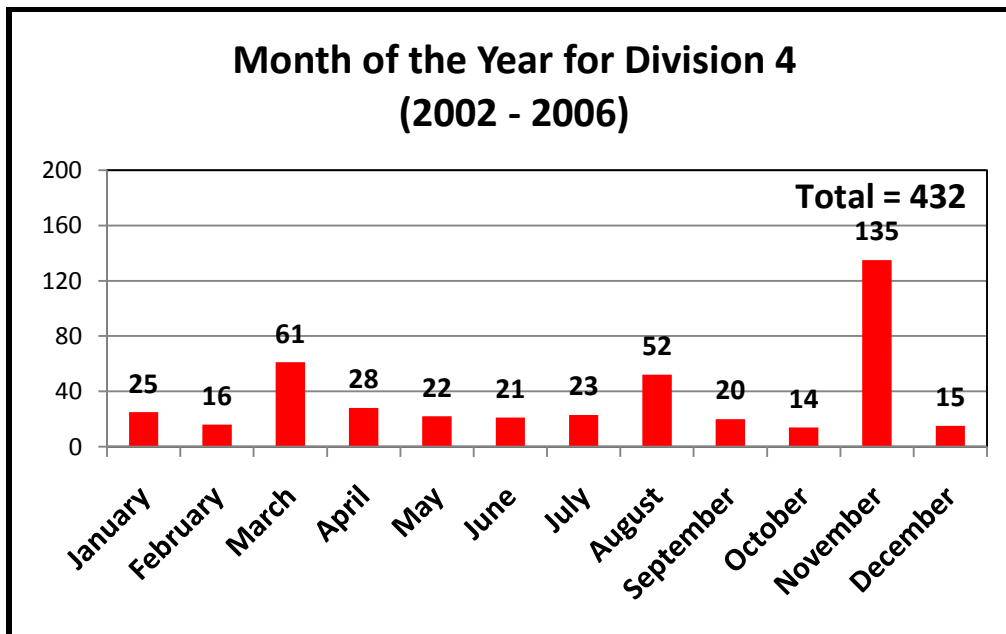
6. Day of the Week

The greatest number of incidents with a total of 183 incidents occurred on Tuesday, as can be seen from the graph. Monday and Wednesday registered second and third place in the number of incidents occurrence with 76 and 74, respectively.



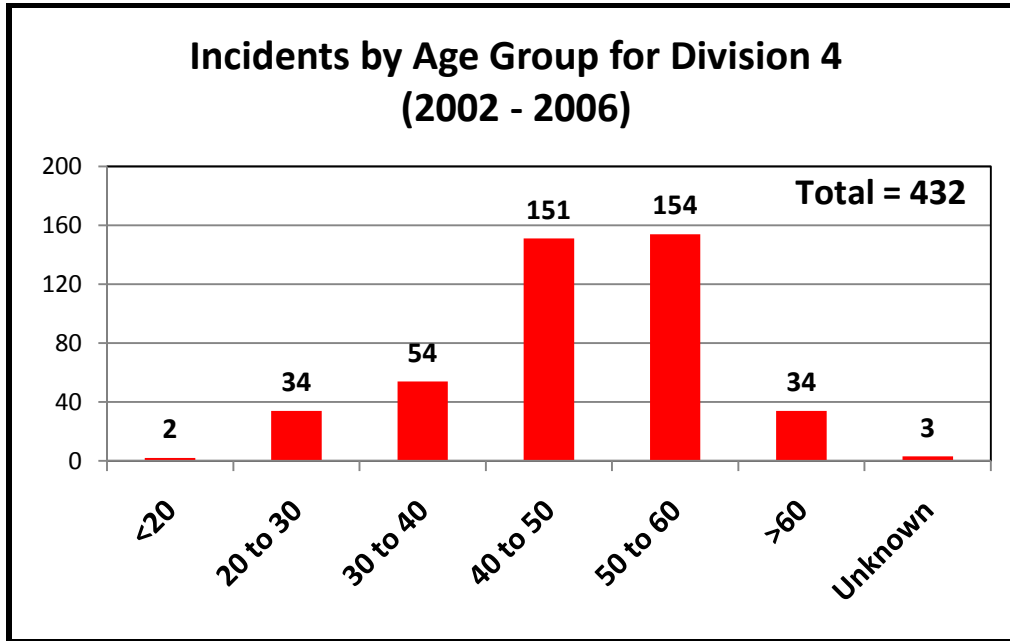
7. Month of the Year

In analyzing incidents by month of the year, November recorded the most incidents with a total of 135 incidents. Second and third greatest amounts were in March and August with 61 and 52, respectively. October had the least number of incidents with a total of 14.



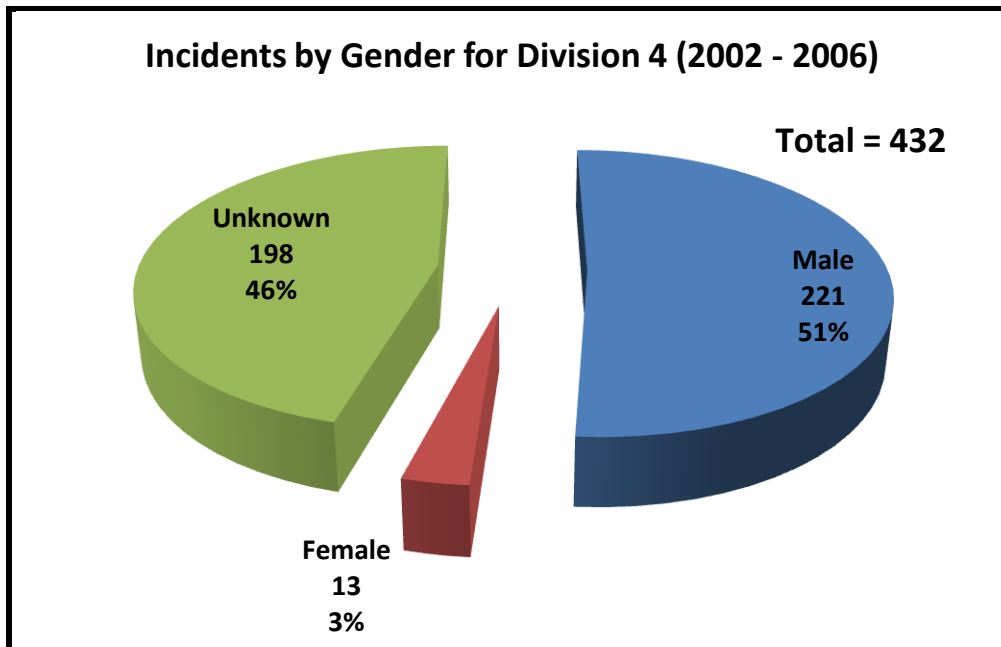
8. Incidents by Age Group

The graph below displays the incidents separated into different age groups for each division. Ages 50 to 60 years had the greatest amount of incidents with 154. The second greatest number of incidents occurred in the 40 to 50 year old group with a total of 151. The least number of incidents occurred in the less than 20 years old with only 2 incidents.



9. Incidents by Gender

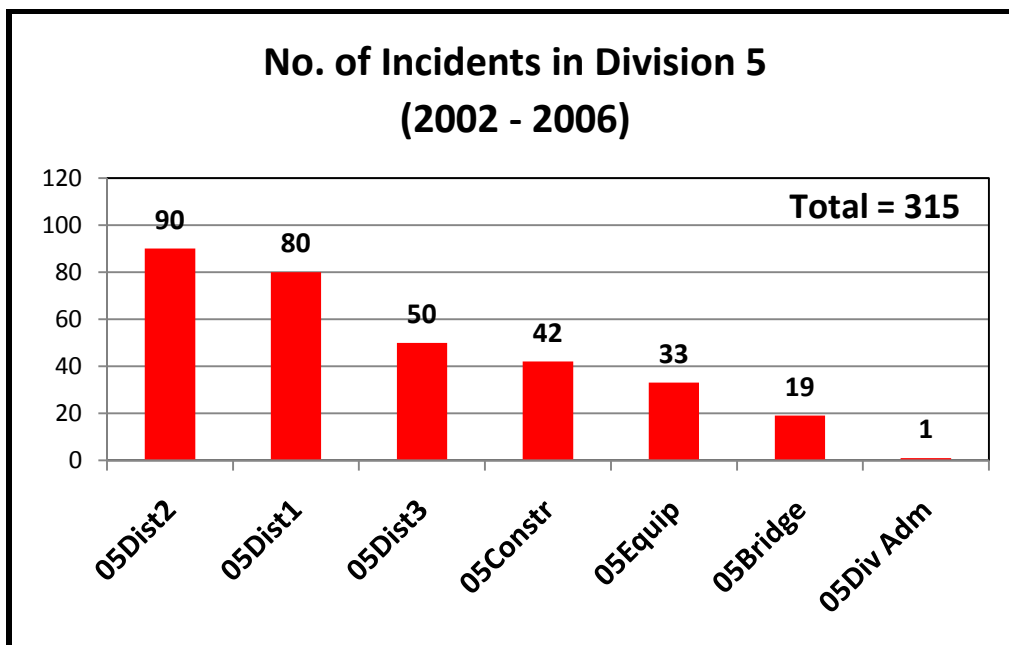
The graph below displays the gender breakdown for each division. The chart shows that 51% of men are involved in the incidents; followed by 46% in the unknown category. The remaining percentage involved females with 3%.



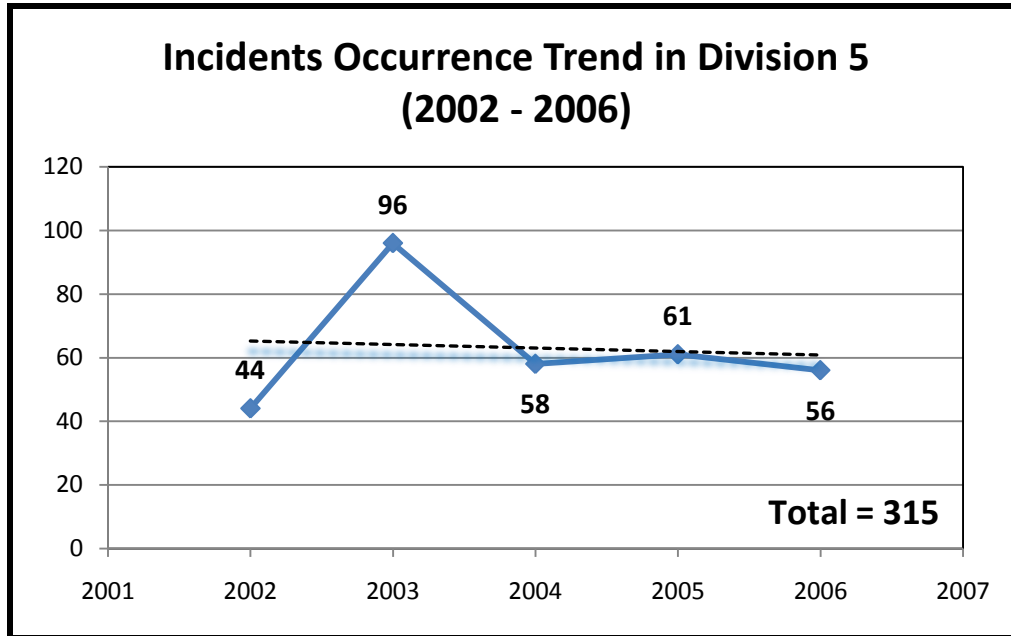
DIVISION 5

1. Number of Incidents

According to the analysis from the database, the total numbers of incidents for Division 5 from 2002-2006 in each office totaled 315 incidents. District 2 had the most incidents with 90, while District 1 and District 3 followed with 80 and 50 incidents. The Construction office had 42 incidents. The Equipment and Bridge offices had 33 and 19, respectively. The Administration department had the least incidents with 1.

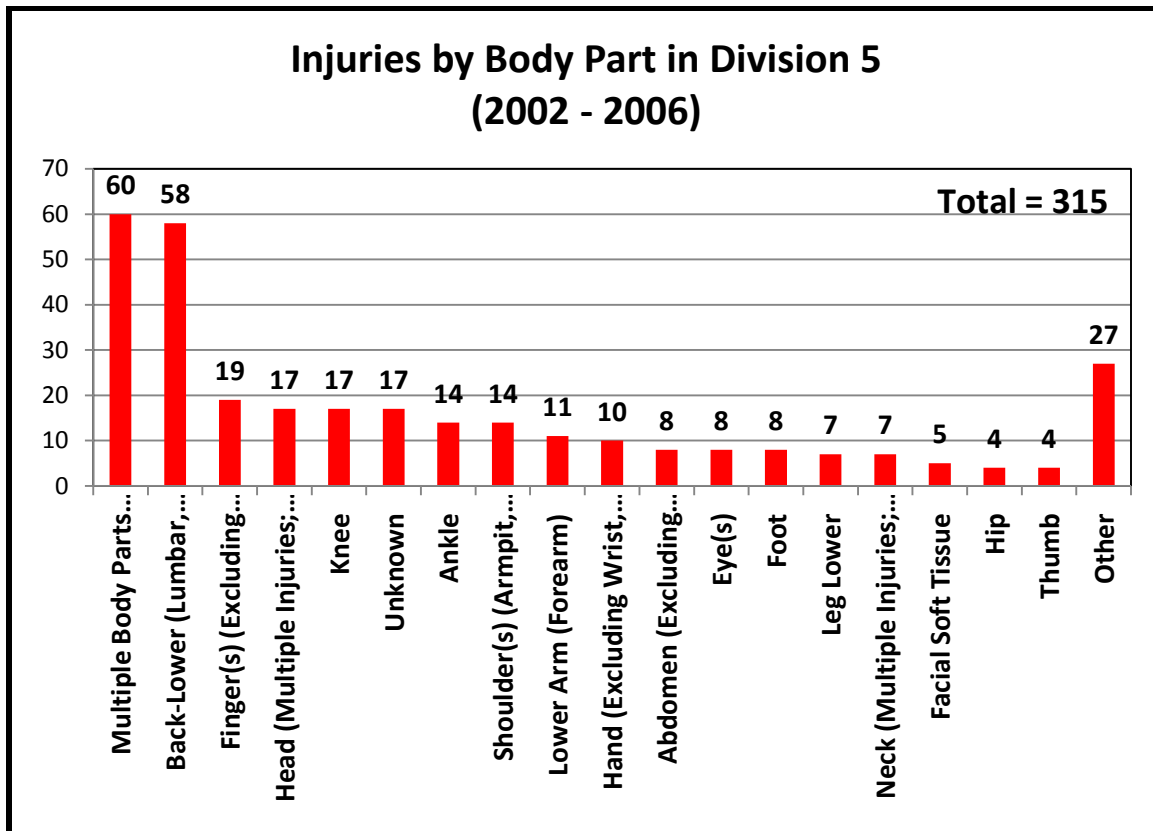


The graph below shows the number of incidents broken down into the 2002-2006 period for Division 5. There were a total of 315 incidents. The graph seems to have a fairly constant trend line overall. It starts at 44 incidents in 2002, increases in 2003 to 96 incidents. Then the graph slowly starts decreasing through 2004-2006. It ends with a total of 56 incidents.



2. Number of Injuries by Body Part

The analysis by body part reflects the parts of the body affected during each incident in Division 5 and other offices and districts. The greatest number of injuries affected multiple body parts with total count of 60 incidents, followed by lower back and fingers with 58 and 19, respectively. A graphical representation of the number of incidents by body part can be seen below. Table lists remaining body parts grouped as “Other.”



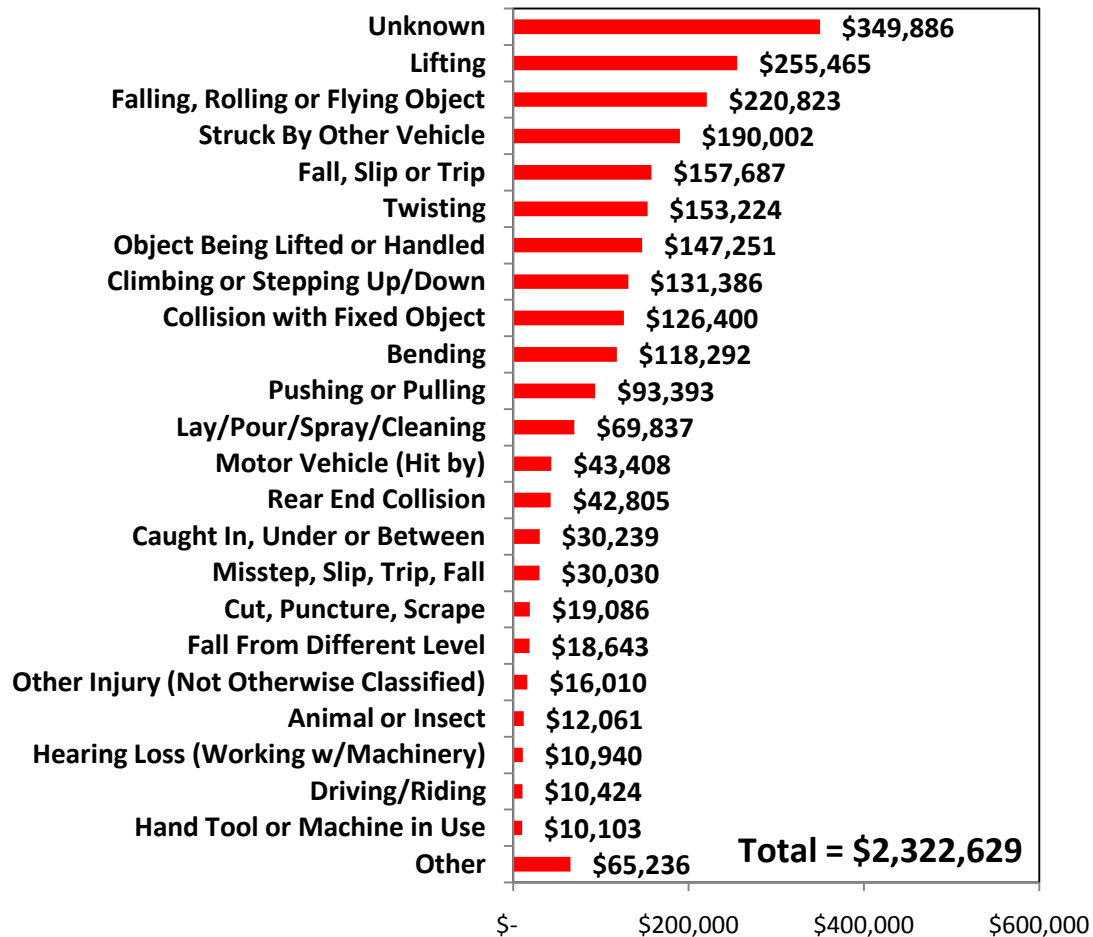
Other Body Parts

Back-Upper (Cervical, Thoracic Area)	Ear(s) (Eardrum)
Elbow (Radial Head)	Facial Bones
Thigh, Upper Leg	Mouth (Lips, Tongue, Throat, Taste)
Upper Arm (Humerus)	Chest (Ribs, Sternum, Soft Tissue)
Wrist	Lower Extremities (Legs, Multiple Inj. To Comb. Part)
Wrist(s) & Hand(s)	Nose (Includes Nasal Passage, Sense of Smell)

3. Dollar Loss by Cause of Injuries

From the database, the following information about dollar loss by cause of incidents was analyzed and the resultant cause of expense was also picked up. In summary, of the highest and the lowest cause of expense, unknown cause accounted for \$349,886, followed by incidents that were caused by lifting or a falling, rolling/flying object, which accounted for \$255,464 and \$220,823. Among the lowest cause of incidents by dollar loss were, results from driving/riding, and hand tool or machine in use with \$10,424 and \$10,103, respectively. A detail graphical representation can be seen on chart below. Table below includes miscellaneous causes of injuries labeled as "Other."

Dollar Loss by Cause in Division 5 (2002 - 2006)



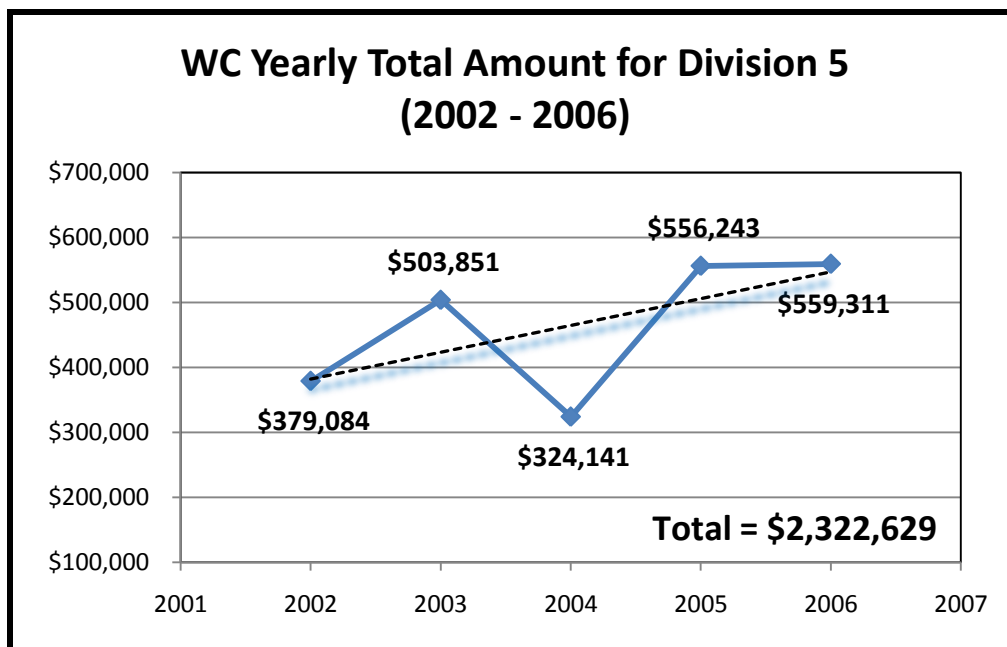
Other Causes of Injuries

Cause	Amount	Cause	Amount
Collision with Another Vehicle	\$ 9,681	Reaching	\$ 764
Slipped, Did Not Fall Foot	\$ 9,681	Struck By Object	\$ 628
Dizzy, Fainted, Passed Out	\$ 6,471	Fall From Liquid or Grease	\$ 575
Heat Exhaustion	\$ 5,022	Contact with Poison Ivy/Oak	\$ 512
Shoveling, Scraping, Sanding, Cleaning	\$ 4,228	Jumping	\$ 467
Overtured or Thrown from Machinery	\$ 4,012	Fall From Ladder or Scaffold	\$ 313
Ran Off Road	\$ 3,855	Equipment Failure	\$ 258
Boiling Water Splashed on Skin	\$ 2,946	Collapsing Matels (Eath Slides)	\$ 258
Moving Parts of Machine	\$ 2,586	Procedure Factors	\$ 189
Hand Tool, Utensil (Not Powered)	\$ 2,271	Overtured	\$ 145
Allergic Reaction/Rash	\$ 2,006	Struck Other Vehicle	\$ 132
Foreign Body in Eye	\$ 1,922	Holding & Carrying	\$ 85
		Events Beyond the Injured	
Not Applicable	\$ 1,630	Control	\$ 83
Hit Stationary Object	\$ 1,418	Broken Mirrors	\$ 75
Burns	\$ 1,074	Pothole	\$ 51
Digging/Drilling	\$ 1,028	Other External Factors	\$ 46
Powered Hand Tool, Appliance	\$ 825		

4. Dollar Loss for All Claims

The dollar loss by all workers compensation claims signifies all claims that resulted from incidents during the study period. From 2002 to 2006, the total dollar loss by all WC claims for Division 5 was \$2.3 million. Table below summarizes each department in Division 5 with the total amount of dollar loss in descending order. Using the check date, the total dollar loss amount of \$2,322,629 is broken out by each year, as shown on the graph with a fairly strong ascending trend.

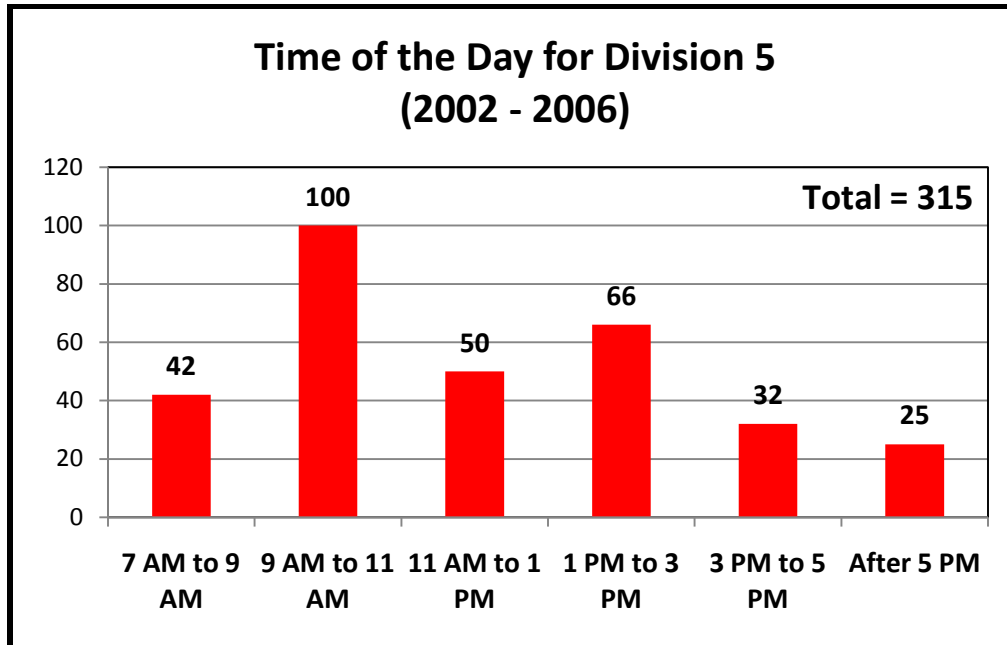
Dollar Loss by All WC Claims (2002 – 2006)			
Division 5			
Total = \$2,322,629			
Dept.	Amount	Dept.	Amount
150301	\$ 512,224	150307	\$ 20,195
150303	\$ 230,036	150764	\$ 19,524
150288	\$ 199,248	150311	\$ 13,158
150292	\$ 146,781	150308	\$ 10,163
3051	\$ 137,616	150299	\$ 5,701
150296	\$ 134,854	150295	\$ 4,696
150887	\$ 115,926	150309	\$ 3,719
150906	\$ 106,719	150760	\$ 3,391
150306	\$ 99,240	150300	\$ 3,284
150758	\$ 94,155	150761	\$ 3,047
150294	\$ 79,887	150304	\$ 2,390
150287	\$ 69,938	150310	\$ 2,228
150759	\$ 69,701	150298	\$ 1,712
150293	\$ 58,433	150082	\$ 1,514
150757	\$ 47,449	150302	\$ 986
150763	\$ 35,913	150305	\$ 467
150291	\$ 34,111	150297	\$ 364
150289	\$ 28,266	150084	\$ 149
150290	\$ 25,436	157340	\$ 10



5. Time of the Day

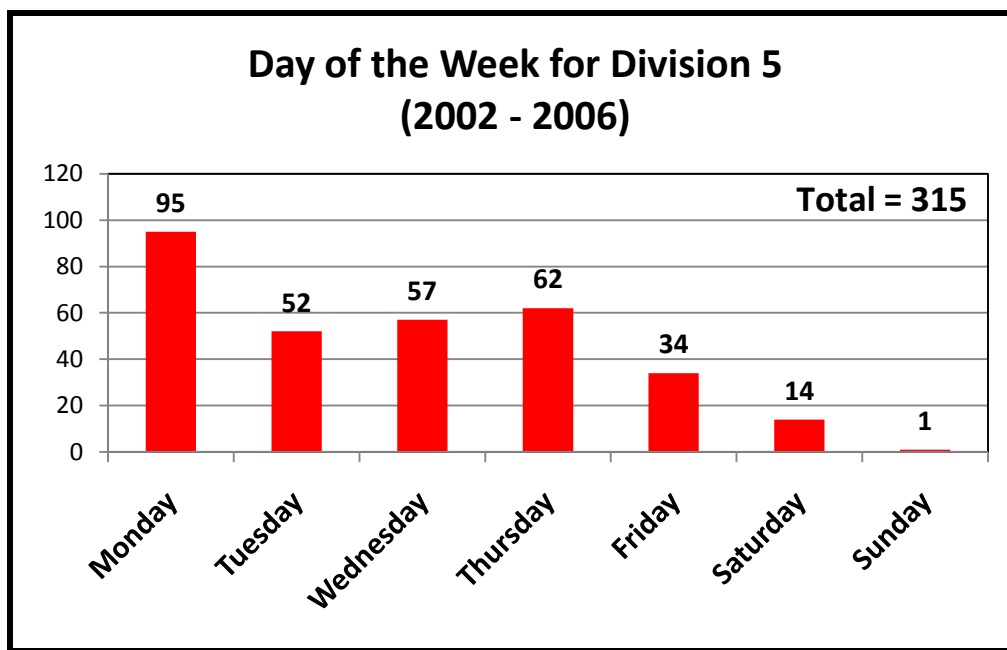
Time of the day analysis reflects all incidents that occurred in Division 5 in six different time groups. Most incidents occurred during the morning hours between 9 AM to 11 AM with a

total of 100 incidents, while 1 PM to 3 PM had second most incidents with a total of 66. There were 25 incidents that occurred after 5 PM.



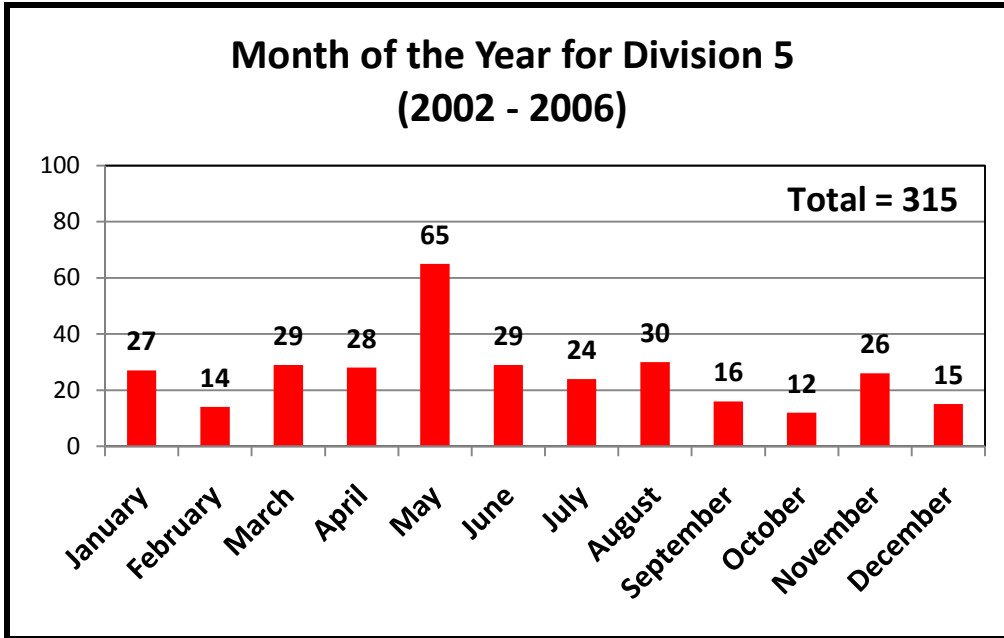
6. Day of the Week

The greatest number of incidents with a total of 95 incidents occurred on Monday, as can be seen from the graph. Thursday and Wednesday registered second and third place in the number of incidents occurrence with 62 and 57, respectively.



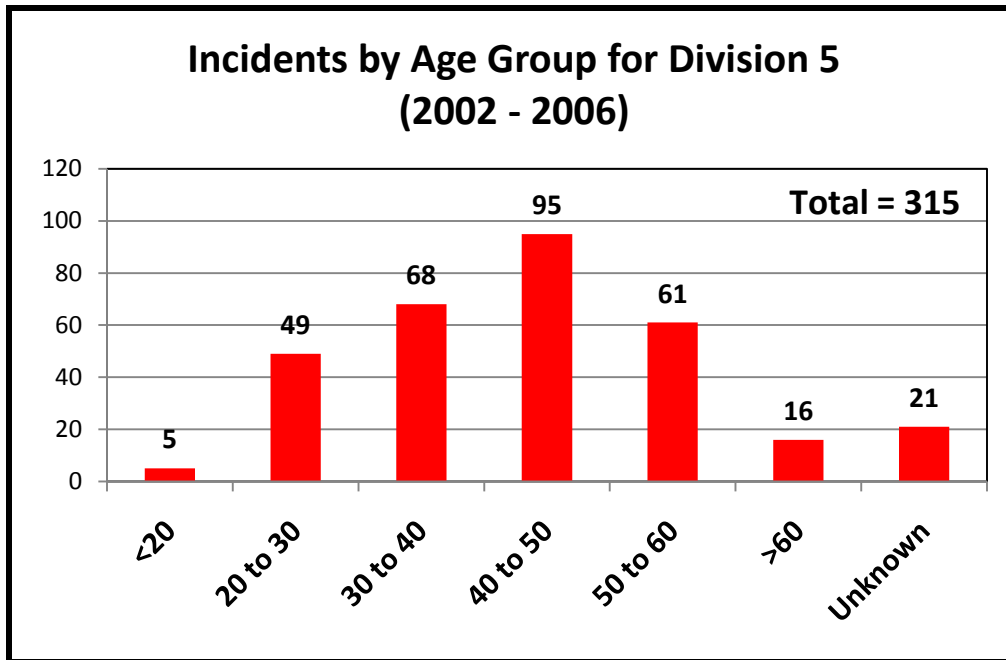
7. Month of the Year

In analyzing incidents by month of the year, May recorded the most incidents with a total of 65 incidents. Second and third greatest amounts were in August and June/March with 30 and 29 each, respectively. September had the least number of incidents with a total of 7.



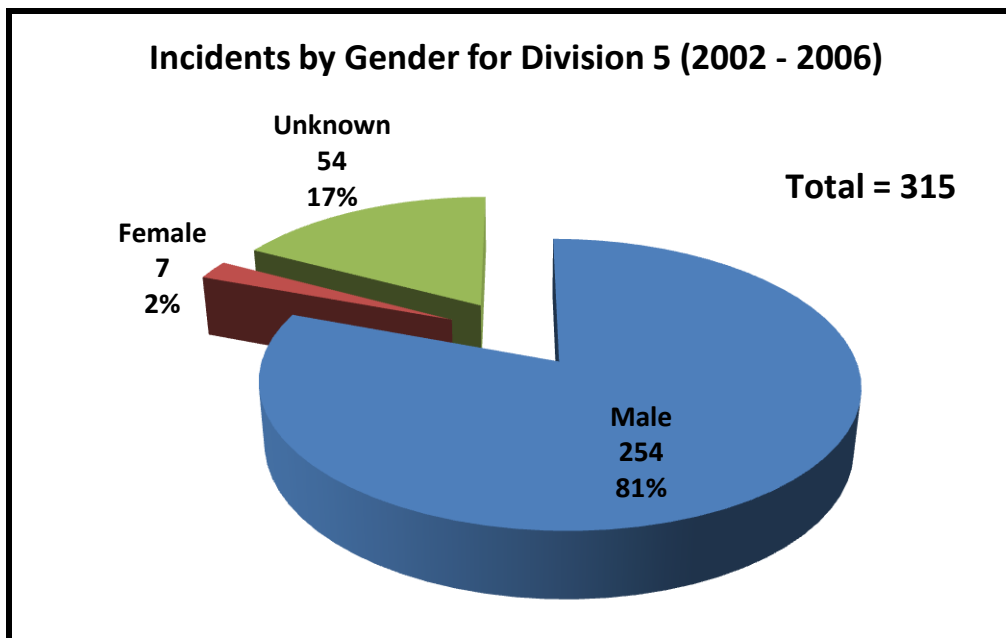
8. Incidents by Age Group

The graph below displays the incidents separated into different age groups for each division. Ages 40 to 50 years had the greatest amount of incidents with 95. The second greatest number of incidents occurred in the 30 to 40 year old group with a total of 68. The least number of incidents occurred in the less than 20 years old category with 5 incidents.



9. Incidents by Gender

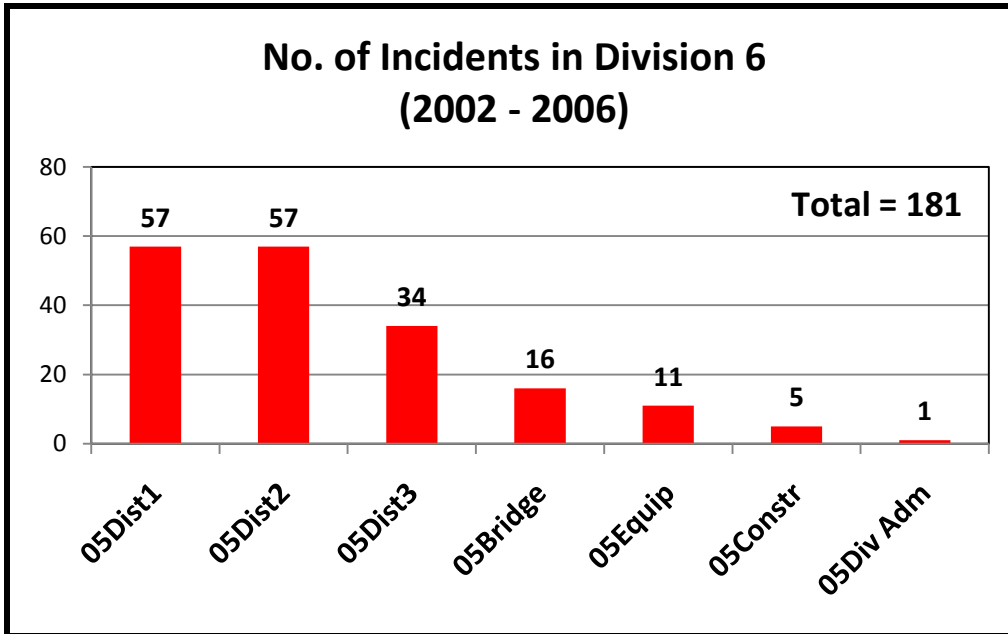
The graph below displays the gender breakdown for each division. The chart shows that 81% of men are involved in the incidents, followed by 17% in the unknown category. The remaining percentage involved females with 2%.



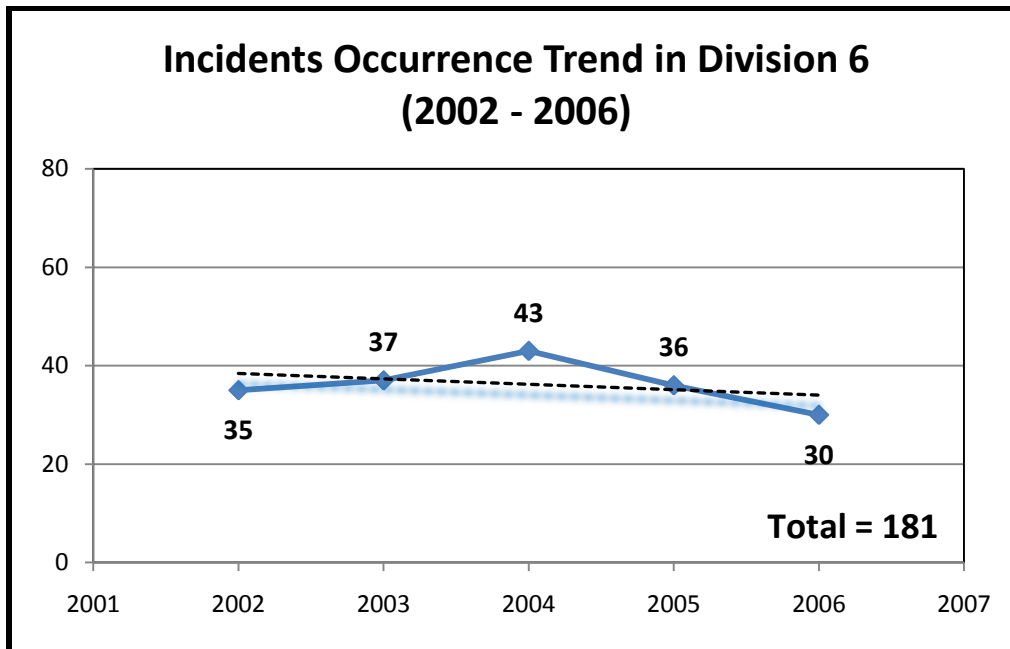
DIVISION 6

1. Number of Incidents

According to the analysis from the database, the total numbers of incidents for Division 6 from 2002-2006 in each office totaled 181 incidents. District 1 and 2 had the greatest amount of incidents with 57 incidents each. While, District 3 followed with 34 incidents. The Equipment and Bridge offices had 11 and 16, respectively. The Construction office had a total of 5 incidents, followed by the Administration department with 1 incident.

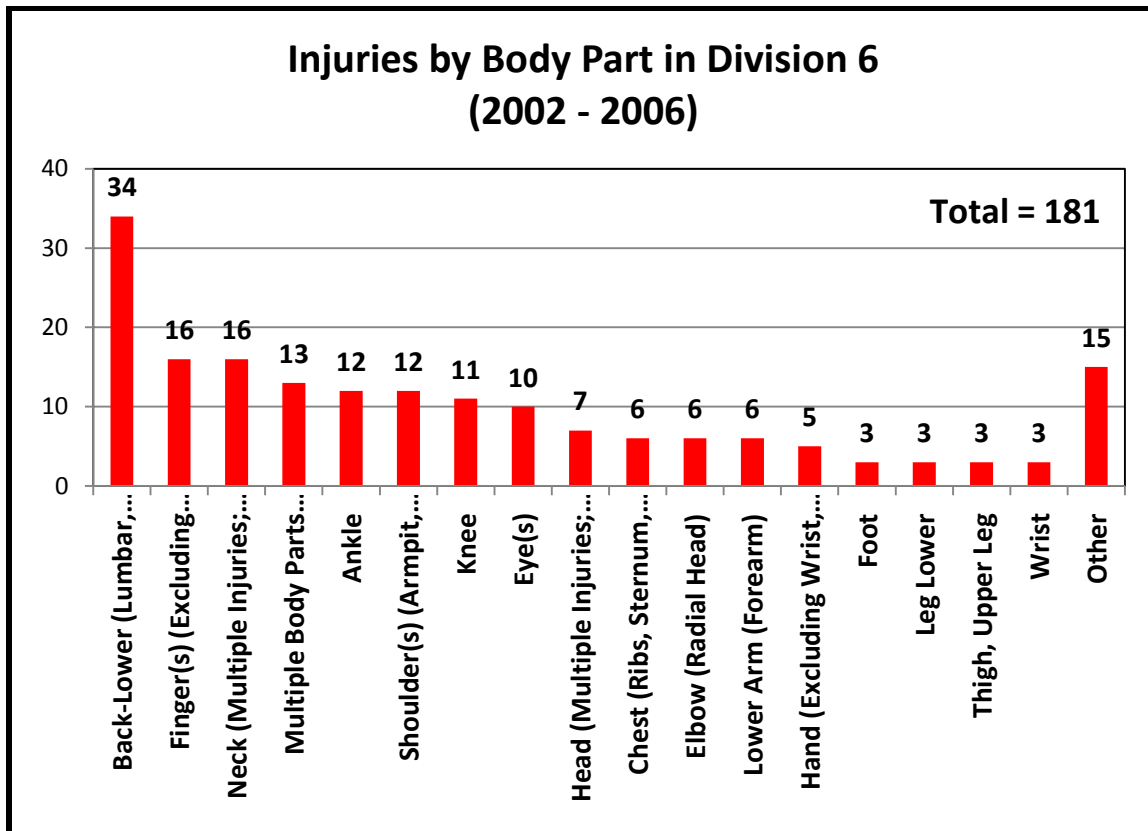


The graph below shows the number of incidents broken down into the 2002-2006 period for Division 6. The graph has a slowly descending trend line. It starts with 35 incidents in 2002, increases in 2003-2005. It drops back down to 30 incidents in 2006.



2. Number of Injuries by Body Part

The analysis by body part reflects the parts of the body affected during each incident in Division 6 and other offices and districts. The greatest number of injuries affected one's lower back with total count of 34, followed by fingers and multiple neck injuries with 16 each. A graphical representation of the number of incidents by body part can be seen below. Table lists remaining body parts grouped as "Other."



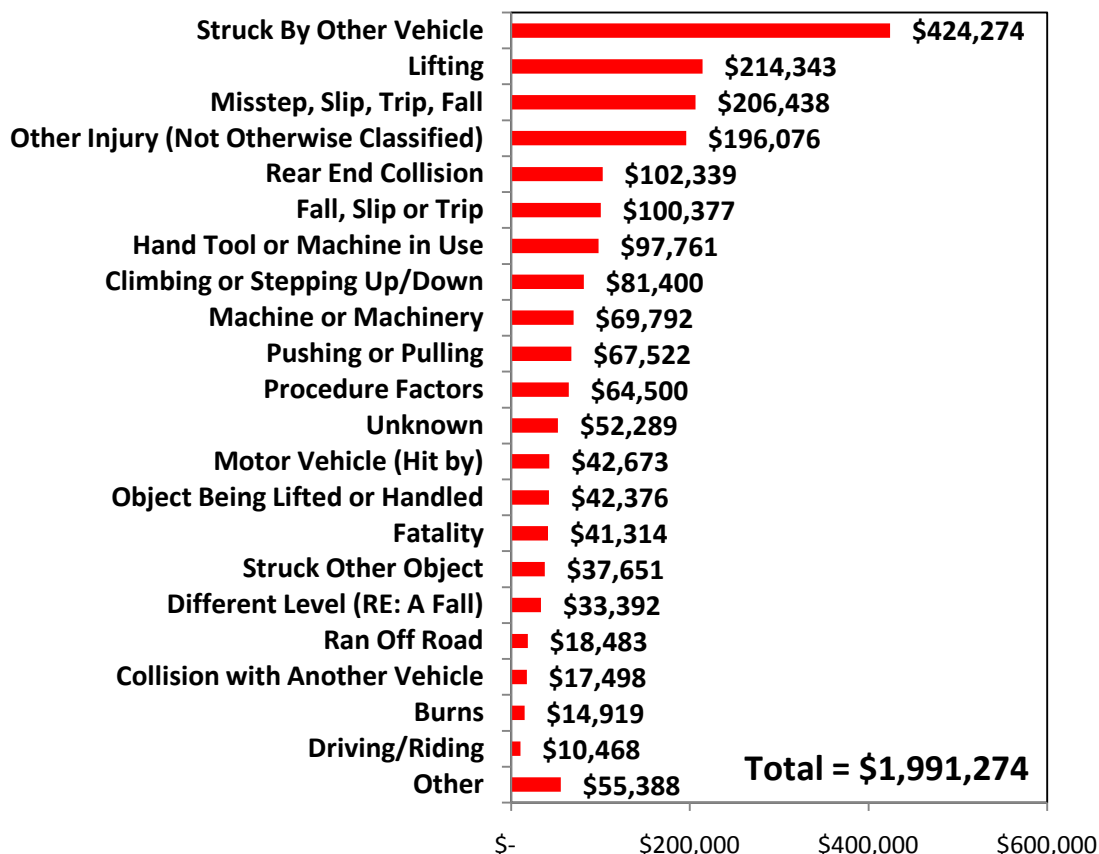
Other Body Parts

Abdomen (Excluding Internal Organs)	Wrist(s) & Hand(s)
Back-Upper (Cervical, Thoracic Area)	Ear(s) (Eardrum)
Hip	Facial Soft Tissue
Thumb	Mouth (Lips, Tongue, Throat, Taste)
Upper Arm (Humerus)	

3. Dollar Loss by Cause of Injuries

From the database, the following information about dollar loss by cause of incidents was analyzed and the resultant cause of expense was also picked up. In summary, of the highest and the lowest cause of expense, being struck by another vehicle accounted for \$424,274, followed by incidents that resulted from lifting or misstep, slip, trip, fall, which accounted for \$214,343 and \$206,438. Among the lowest cause of incidents by dollar loss were, results from being burned, and driving/riding with \$14,919 and \$10,468, respectively. A detail graphical representation can be seen on chart below. Table below includes miscellaneous causes of injuries labeled as “Other.”

Dollar Loss by Cause in Division 6 (2002 - 2006)



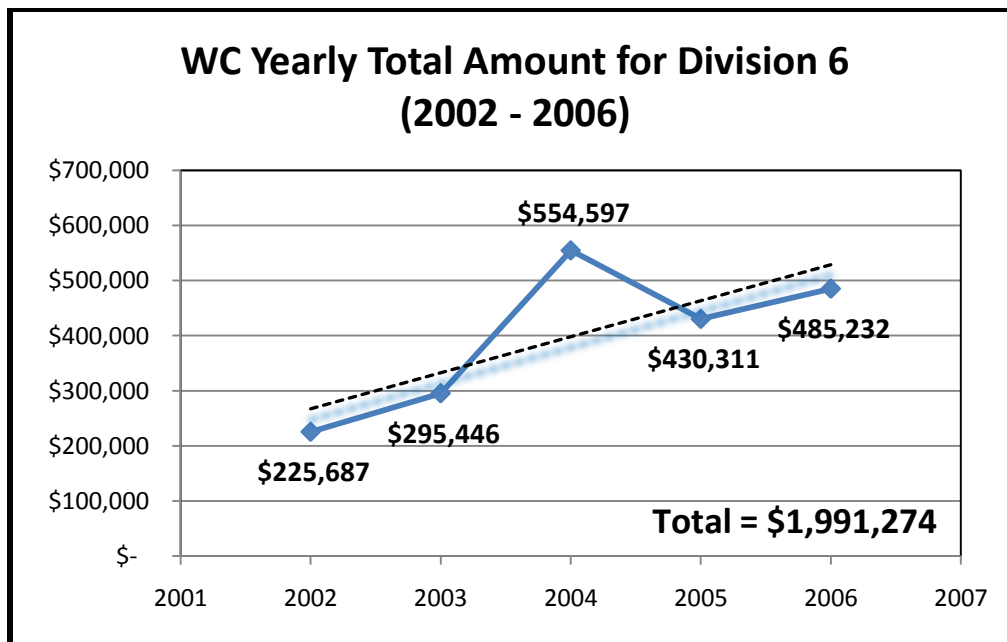
Other Causes of Injuries

Cause	Amount	Cause	Amount
Fall From Ladder or Scaffold	\$ 7,663	Reaching	\$ 638
Caught In, Under or Between	\$ 7,213	Bending	\$ 625
Shoveling, Scraping, Sanding, Cleaning	\$ 6,109	Contact with Poison Ivy/Oak	\$ 549
Cut, Puncture, Scrape	\$ 5,906	Moving, Stepping aside, Turning	\$ 477
Hit Stationary Object	\$ 4,378	Overtaken or Thrown from Machinery	\$ 349
Hand Tool, Utensil (Not Powered)	\$ 4,246	Contact with Chemicals	\$ 320
Moving Parts of Machine	\$ 4,227	Dust, Gases, Fumes, or Vapors	\$ 307
Falling, Rolling or Flying Object	\$ 3,558	Supervision Factors	\$ 223
Animal or Insect	\$ 2,718	Repetitive Motion	\$ 74
Twisting	\$ 2,119	Struck By Object	\$ 51
Foreign Body in Eye	\$ 1,892	Allergic Reaction/Rash	\$ 49
Jumping	\$ 897	Same Level (re: A Fall)	\$ 36
Not Applicable	\$ 766		

4. Dollar Loss for All Claims

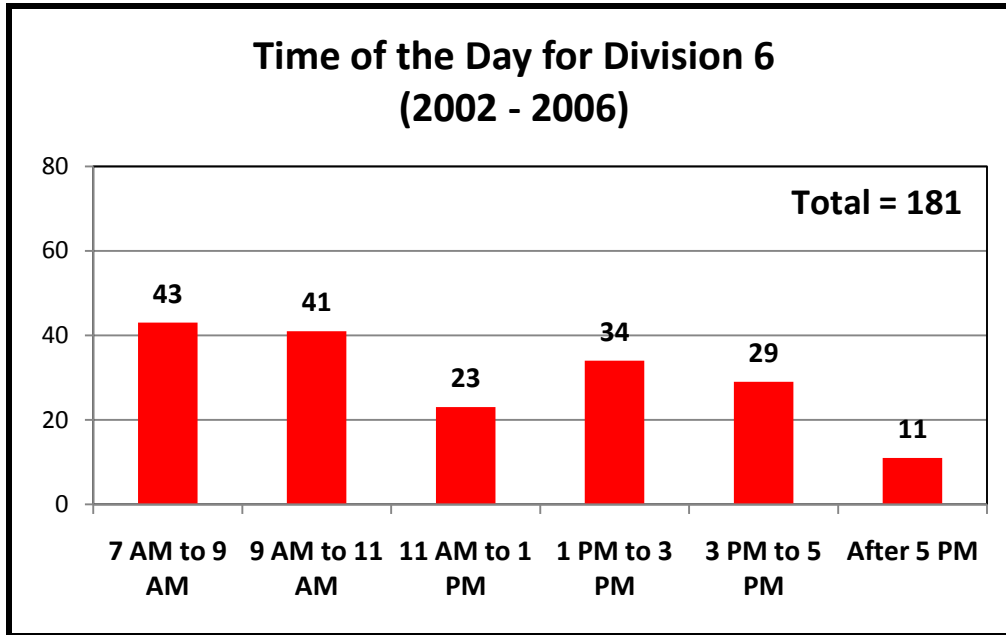
The dollar loss by all workers compensation claims signifies all claims that resulted from incidents during the study period. From 2002 to 2006, the total dollar loss by all WC claims for Division 6 was \$1.9 million. Table below summarizes each department in Division 6 with the total amount of dollar loss in descending order. Using the check date, the total dollar loss amount of \$1,991,274 is broken out by each year, as shown on the graph with a very strong upward trend.

Dollar Loss by All WC Claims (2002 – 2006) Division 6 Total = \$1,991,274			
Dept.	Amount	Dept.	Amount
150088	\$ 279	150325	\$ 14,650
150312	\$ 21,679	150326	\$ 171,028
150313	\$ 118,473	150327	\$ 124,206
150314	\$ 364,397	150329	\$ 1,008
150315	\$ 77,170	150333	\$ 143
150316	\$ 158,797	150765	\$ 394,370
150317	\$ 238,369	150766	\$ 4,415
150318	\$ 22,700	150768	\$ 10,501
150319	\$ 205,964	150769	\$ 435
150320	\$ 44,242	150770	\$ 178
150321	\$ 11,602	150771	\$ 1,735
150322	\$ 2,229	3060	\$ 2,078
150323	\$ 624		



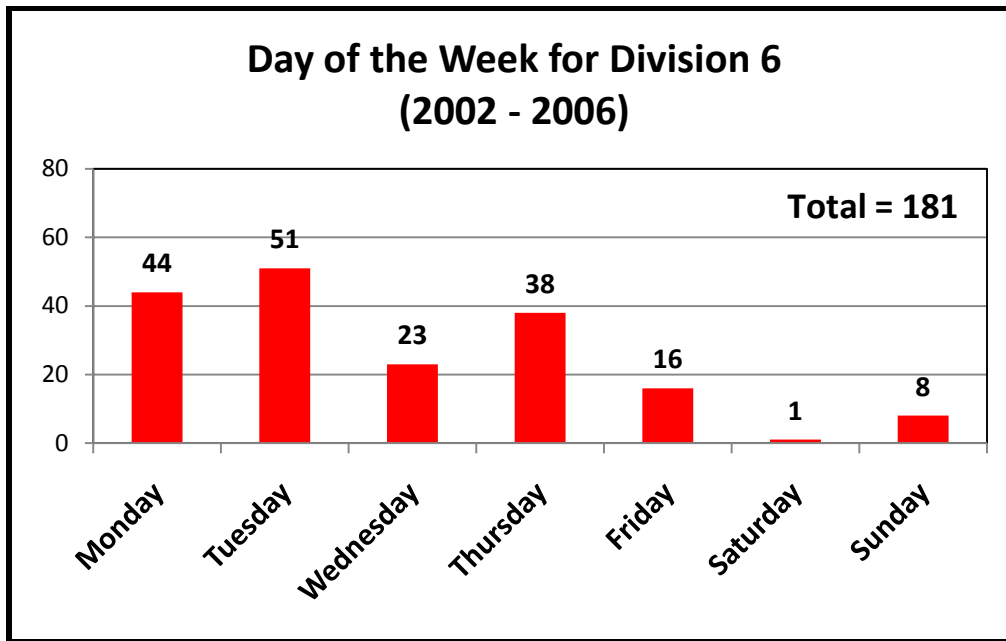
5. Time of the Day

Time of the day analysis reflects all incidents that occurred in Division 6 in six different time groups. Most incidents occurred during the morning hours between 7 AM to 9 AM with a total of 43 incidents, while 9 AM to 11 AM had second most incidents with a total of 41. There were 11 incidents that occurred after 5 PM.



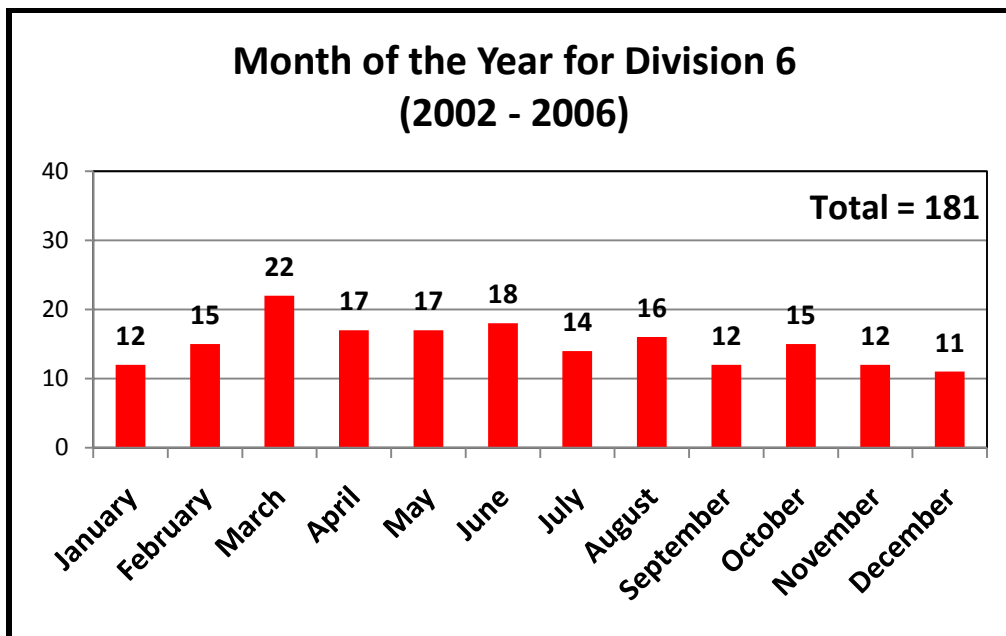
6. Day of the Week

The greatest number of incidents with a total of 51 incidents occurred on Tuesday, as can be seen from the graph. Monday and Thursday registered second and third place in the number of incidents occurrence with 44 and 38, respectively.



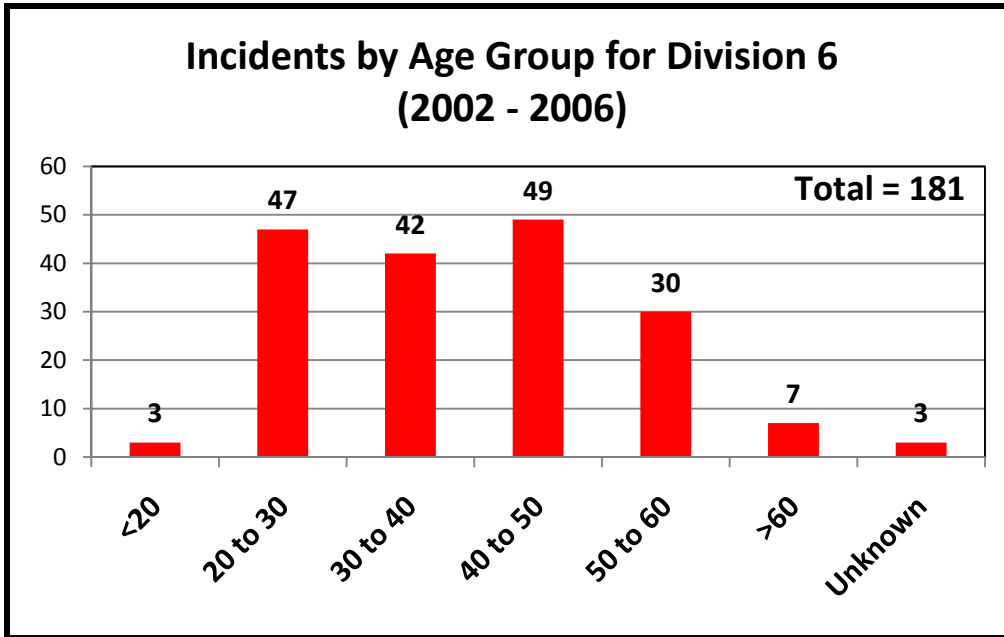
7. Month of the Year

In analyzing incidents by month of the year, March recorded the most incidents with a total of 22 incidents. Second and third greatest amount were in June and April/May with 18 and 17 each, respectively. September had the least number of incidents with a total of 7.



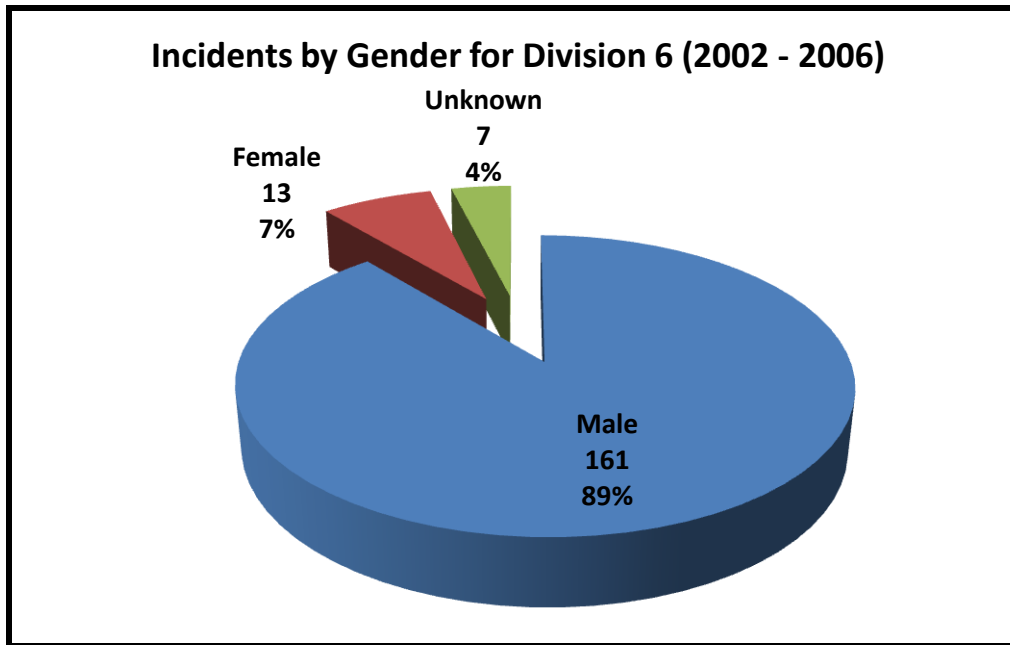
8. Incidents by Age Group

The graph below displays the incidents separated into different age groups for each division. Ages 40 to 50 years had the greatest amount of incidents with 49. The second greatest number of incidents occurred in the 20 to 30 year old group with a total of 47. The least number of incidents occurred in the less than 20 years old category with 3 incidents.



9. Incidents by Gender

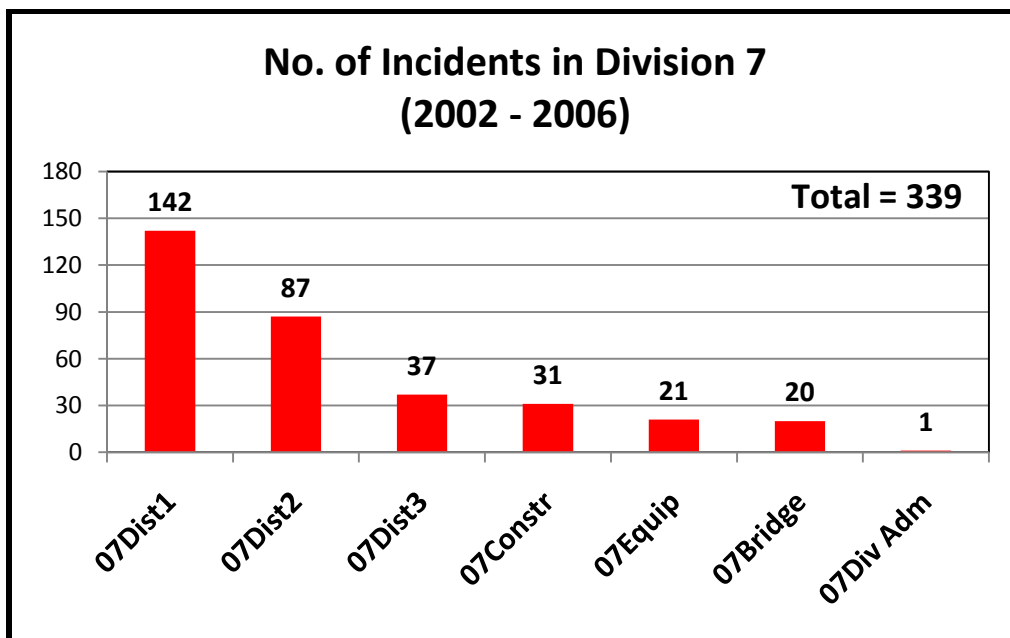
The graph below displays the gender breakdown for each division. The chart shows that 89% of men are involved in the incidents, followed by 7% involving females. The remaining percentage is in the unknown category with 4%.



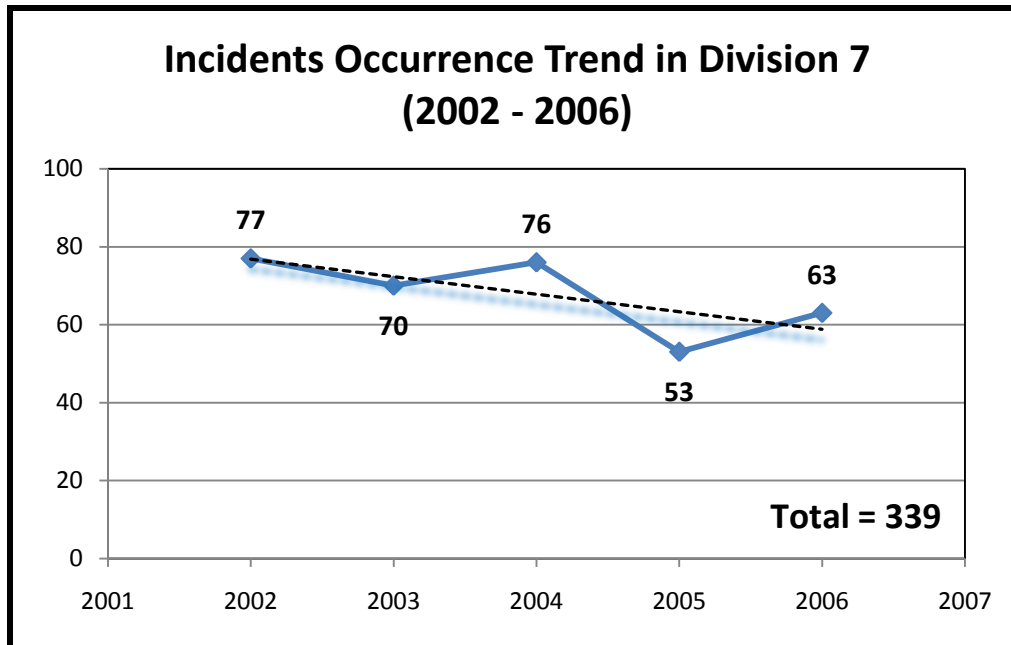
DIVISION 7

1. Number of Incidents

According to the analysis from the database, the total numbers of incidents for Division 7 from 2002-2006 in each office totaled 339 incidents. District 1 had the most incidents with 142 incidents, while District 2 and District 3 followed with 87 and 37 incidents. The Construction office had 31 incidents, Equipment with 21, and Bridge with 20 incidents. The Administration department had the least incidents of 1.

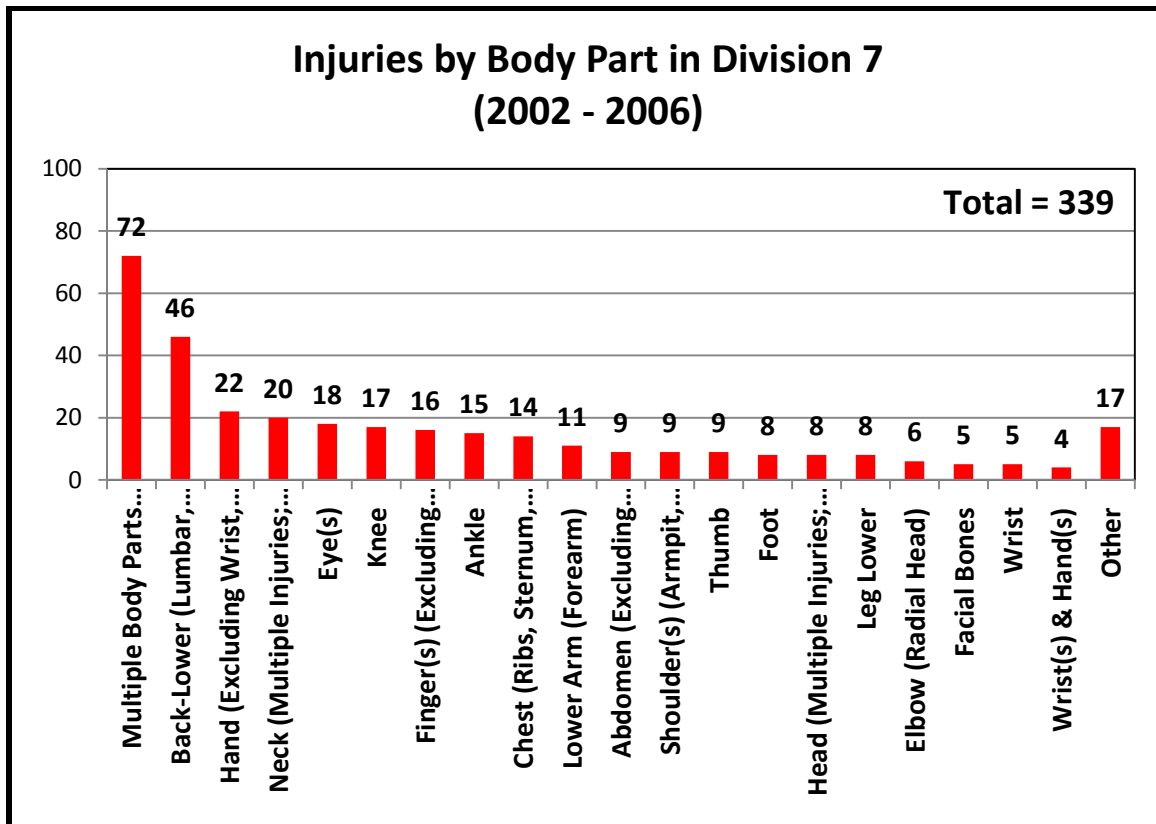


The graph below shows the number of incidents broken down into the 2002-2006 period for Division 7. The graph seems to have a fairly constant descending trend line. It starts at 77 incidents in 2002. The graph then decreases in 2003-2005. It jumps back up to 63 incidents in 2006.



2. Number of Injuries by Body Part

The analysis by body part reflects the parts of the body affected during each incident in Division 7 and other offices and districts. The greatest number of injuries affected multiple body parts with total count of 72, followed by lower back and hand injuries with 46 and 22, respectively. A graphical representation of the number of incidents by body part can be seen below. Table lists remaining body parts grouped as “Other.”



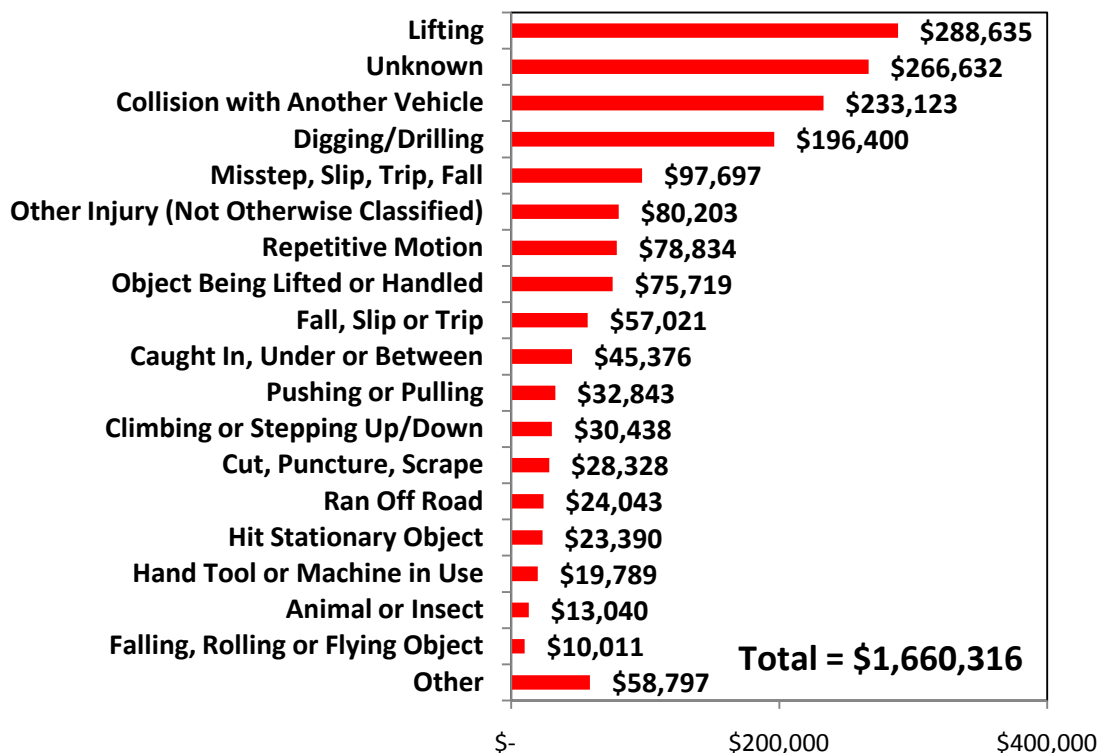
Other Body Parts

Facial Soft Tissue	Unknown
Hip	Upper Arm (Humerus)
Mouth (Lips, Tongue, Throat, Taste)	Back-Upper (Cervical, Thoracic Area)
Pelvis	Skull
Thigh, Upper Leg	Upper Extremities (Multiple to Arms, Excluding Wr)

3. Dollar Loss by Cause of Injuries

From the database, the following information about dollar loss by cause of incidents was analyzed and the resultant cause of expense was also picked up. In summary, of the highest and the lowest cause of expense, lifting accounted for \$288,635 followed by incidents that resulted from unknown causes or a collision with another vehicle, which accounted for \$266,632 and \$233,123. Among the lowest cause of incidents by dollar loss were, results from an insect or animal, and falling, rolling, or flying object with \$13,040 and \$10,011, respectively. A detail graphical representation can be seen on chart below. Table below includes miscellaneous causes of injuries labeled as “Other.”

Dollar Loss by Cause in Division 7 (2002 - 2006)



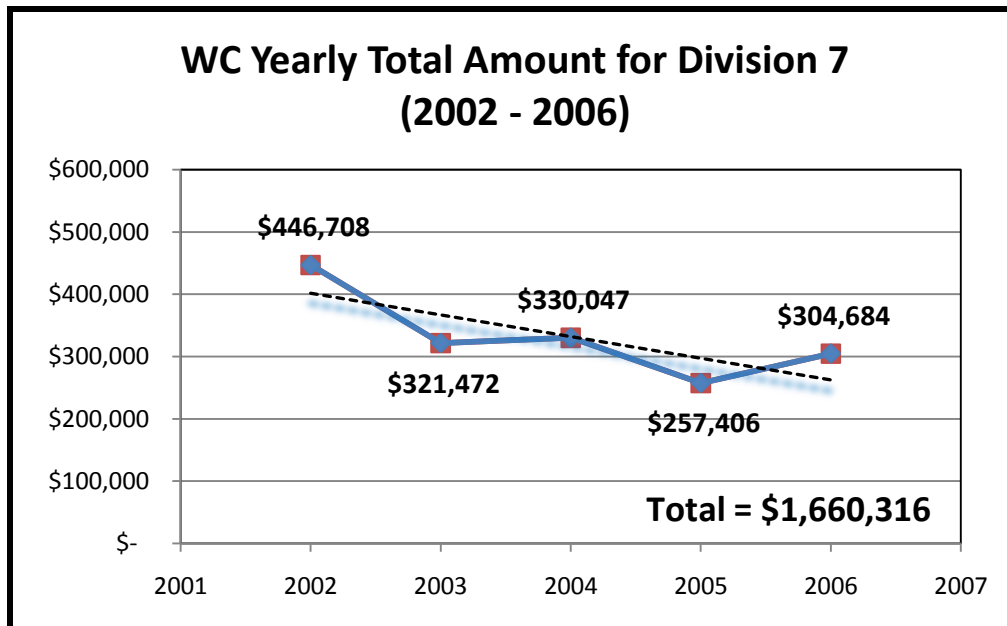
Other Causes of Injuries

Cause	Amount	Cause	Amount
Struck By Other Vehicle	\$ 6,991	Motor Vehicle (Hit by)	\$ 624
Struck By Object	\$ 6,909	Moving Parts of Machine	\$ 524
Rear End Collision	\$ 6,483	Moving, Stepping aside, Turning	\$ 474
Contact with Poison Ivy/Oak	\$ 6,219	Overturned	\$ 456
Machine or Machinery	\$ 5,869	Equipment Failure	\$ 381
Bending	\$ 3,464	Powered Hand Tool, Appliance	\$ 342
Foreign Body in Eye	\$ 3,367	Dizzy, Fainted, Passed	\$ 336
Shoveling, Scraping, Sanding, Cleaning	\$ 2,968	Running or Jogging	\$ 318
Holding & Carrying	\$ 2,211	Driving/Riding	\$ 275
Puncture Wound	\$ 1,633	Heating Apparatus	\$ 191
Hand Tool, Utensil (Not Powered)	\$ 1,581	Struck Other Object	\$ 177
Contact with Electrical Current	\$ 1,466	Fall From Different Level	\$ 177
Burns	\$ 1,130	Heat Exhaustion	\$ 177
Jumping	\$ 1,116	Broken Glass	\$ 172
Collapsing Matels (Eath Slides)	\$ 1,063	Allergic Reaction/Rash	\$ 168
Overturned or Thrown from Machinery	\$ 792	Slipped, Did Not Fall Foot	\$ 104
Chemicals (e.g. Picked Battery)	\$ 642		

4. Dollar Loss for All Claims

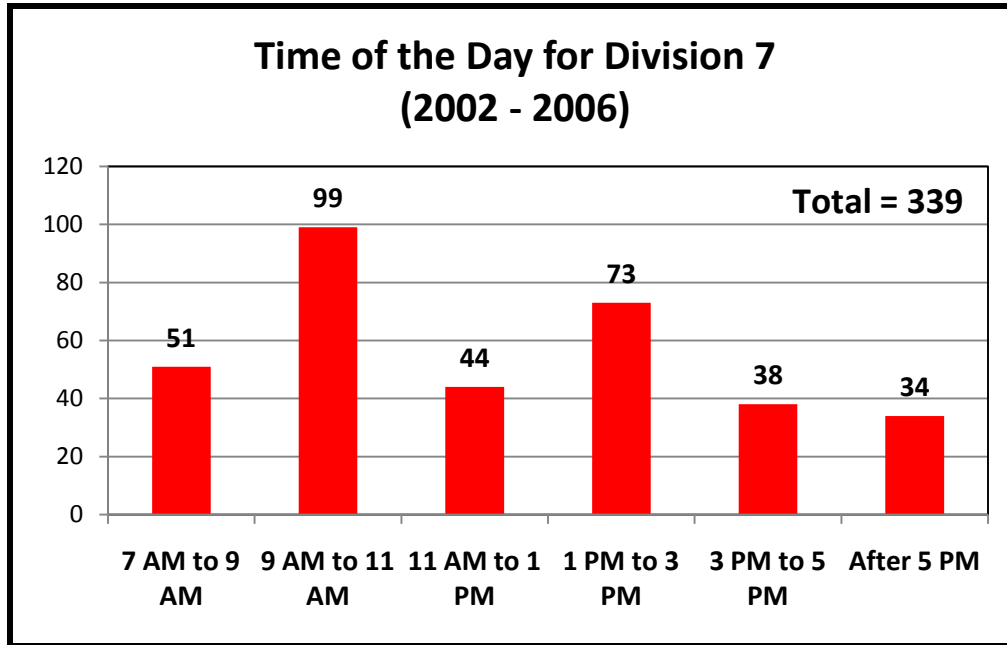
The dollar loss by all workers compensation claims signifies all claims that resulted from incidents during the study period. From 2002 to 2006, the total dollar loss by all WC claims for Division 7 was \$1.6 million. Table below summarizes each department in Division 7 with the total amount of dollar loss in descending order. Using the check date, the total dollar loss amount of \$1,660,316 is broken out by each year, as shown on the graph with a slightly descending trend.

Dollar Loss by All WC Claims (2002 – 2006) Division 7 Total = \$1,660,316			
Dept.	Amount	Dept.	Amount
150348	\$ 388,001	150336	\$ 4,941
150337	\$ 229,645	150355	\$ 3,143
150339	\$ 177,742	150343	\$ 2,524
150335	\$ 175,556	150776	\$ 2,027
150334	\$ 148,851	150356	\$ 1,827
150351	\$ 113,906	150352	\$ 1,506
150345	\$ 95,822	150344	\$ 867
150349	\$ 57,010	150773	\$ 822
150350	\$ 49,269	150346	\$ 567
150886	\$ 47,734	150775	\$ 557
150347	\$ 41,339	150774	\$ 371
150340	\$ 37,285	150778	\$ 320
150341	\$ 30,528	Unknown	\$ 244
150338	\$ 24,132	150354	\$ 65
150342	\$ 14,450	150092	\$ 60
150772	\$ 9,204		



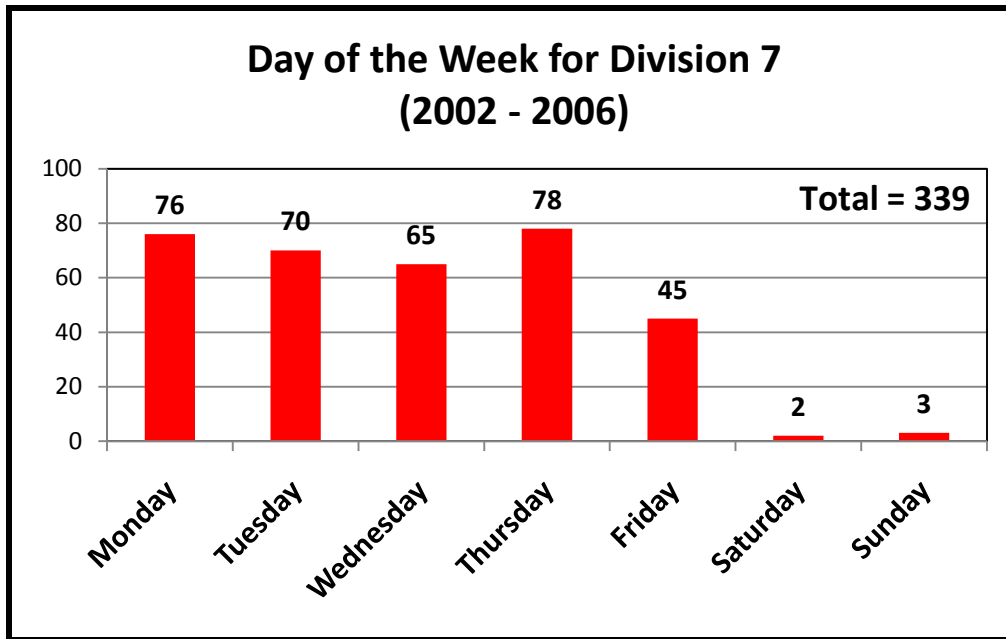
5. Time of the Day

Time of the day analysis reflects all incidents that occurred in Division 7 in six different time groups. Most incidents occurred during the morning hours between 9 AM to 11 AM with a total of 99 incidents, while 1 PM to 3 PM had second most incidents with a total of 73. There were 34 incidents that occurred after 5 PM.



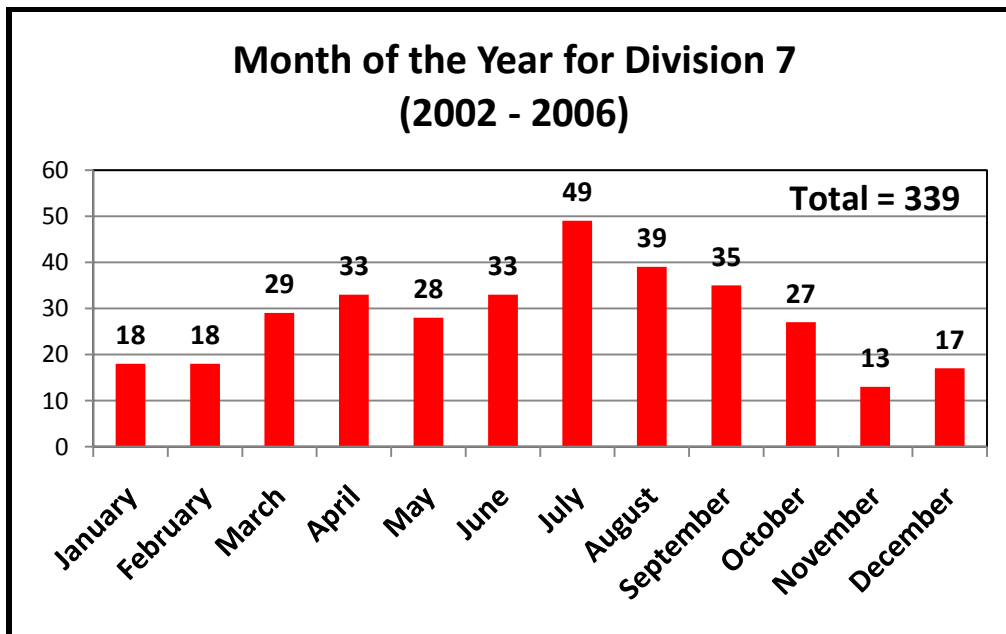
6. Day of the Week

The greatest number of incidents with a total of 78 incidents occurred on Thursday, as can be seen from the graph. Monday and Tuesday registered second and third place in the number of incidents occurrence with 76 and 70, respectively.



7. Month of the year

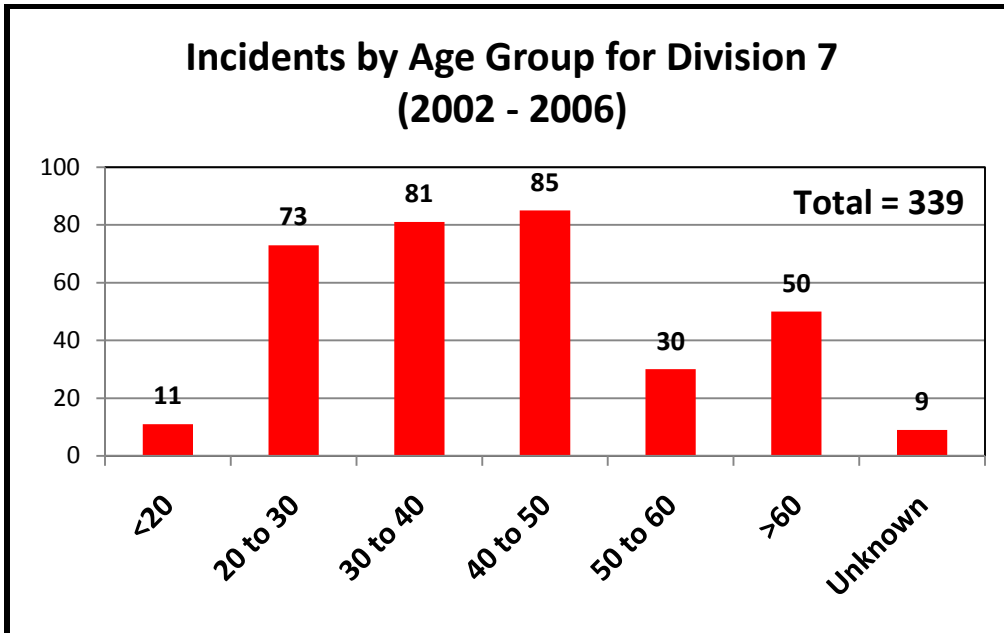
In analyzing incidents by month of the year, July recorded the most incidents with a total of 49 incidents. Second and third greatest amount were in August and September with 39 and 35, respectively. November had the least number of incidents with a total of 13.



8. Incidents by Age Group

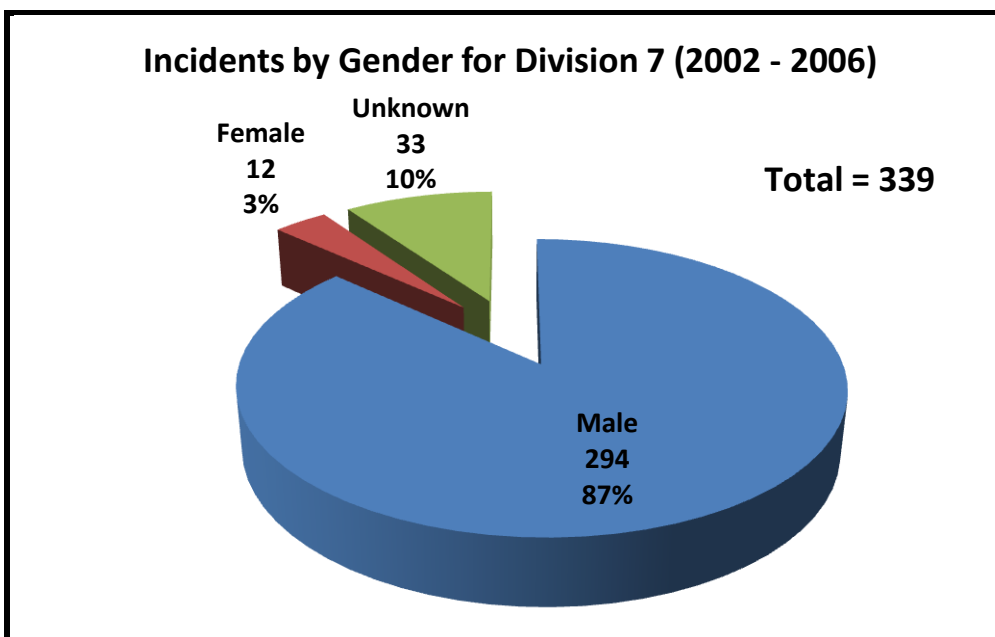
The graph below displays the incidents separated into different age groups for each division. Ages 40 to 50 years had the greatest amount of incidents with 85. The second greatest

number of incidents occurred in the 30 to 40 year old group with a total of 81. The least number of incidents occurred in the unknown category with 9 incidents.



9. Incidents by Gender

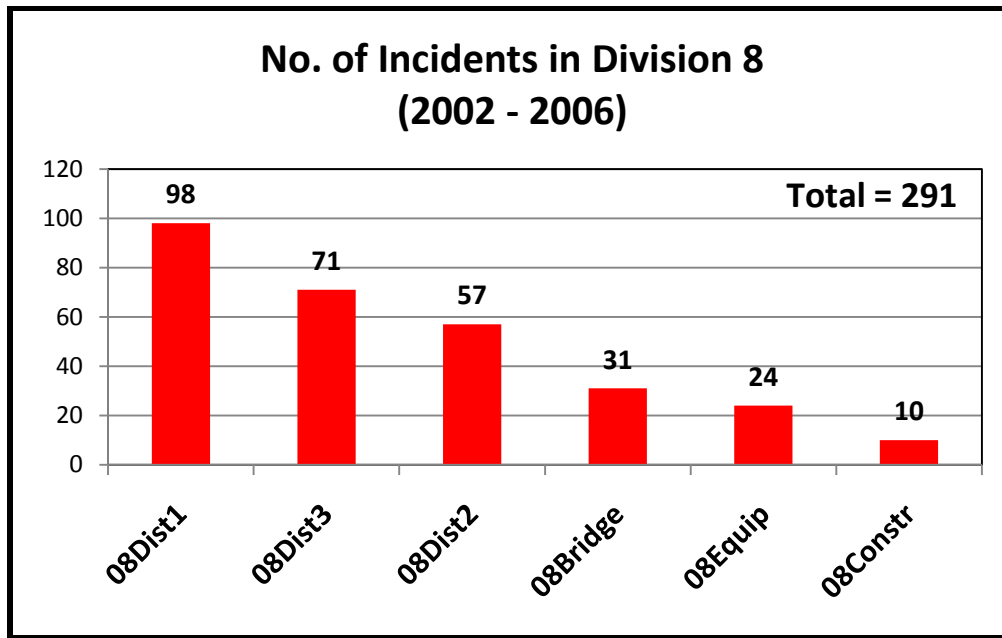
The graph below displays the gender breakdown for each division. The chart shows that 87% of men are involved in the incidents, followed by 10% in the unknown category. The remaining percentage involved females with 3%.



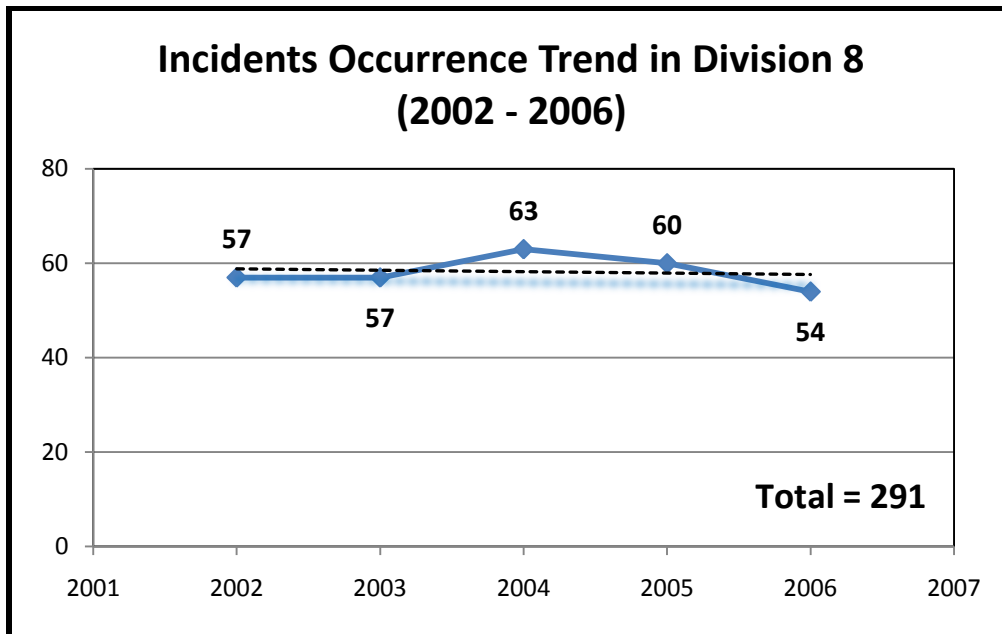
DIVISION 8

1. Number of Incidents

According to the analysis from the database, the total numbers of incidents for Division 8 from 2002-2006 in each office totaled 291 incidents. District 1 had the most incidents with 98 incidents, while District 3 and District 2 followed with 71 and 57 incidents. The Bridge office had 31 incidents, Equipment with 24, and Construction with 10 incidents.

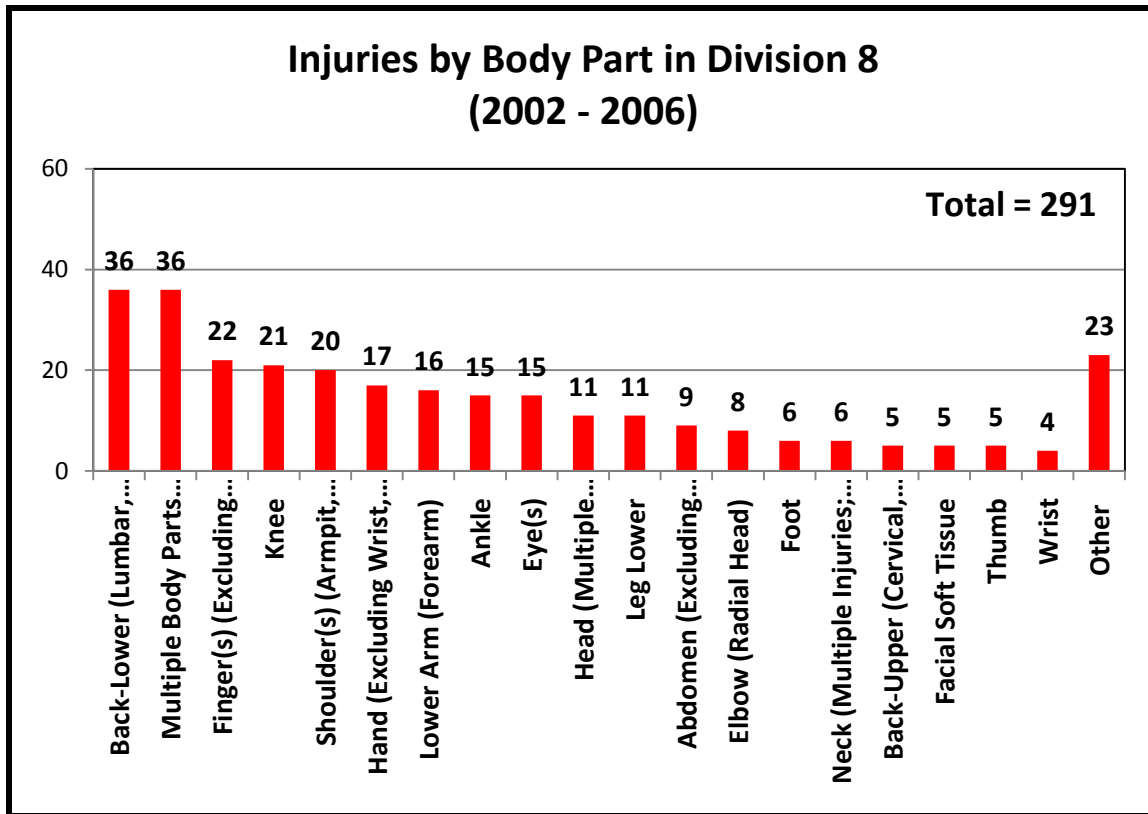


The graph below shows the number of incidents broken down into the 2002-2006 period for Division 8. The graph seems to have a fairly constant trend line. It starts at 57 incidents in 2002. The trend line increases in 2004-2005. It drops back down to 54 incidents in 2006



2. Number of Injuries by Body Part

The analysis by body part reflects the parts of the body affected during each incident in Division 8 and other offices and districts. The greatest number of injuries affected multiple body parts and one's lower back with total count of 36, followed by fingers and knees with 22 and 21, respectively. A graphic representation of the number of incidents by body part can be seen below. Table lists remaining body parts grouped as "Other."



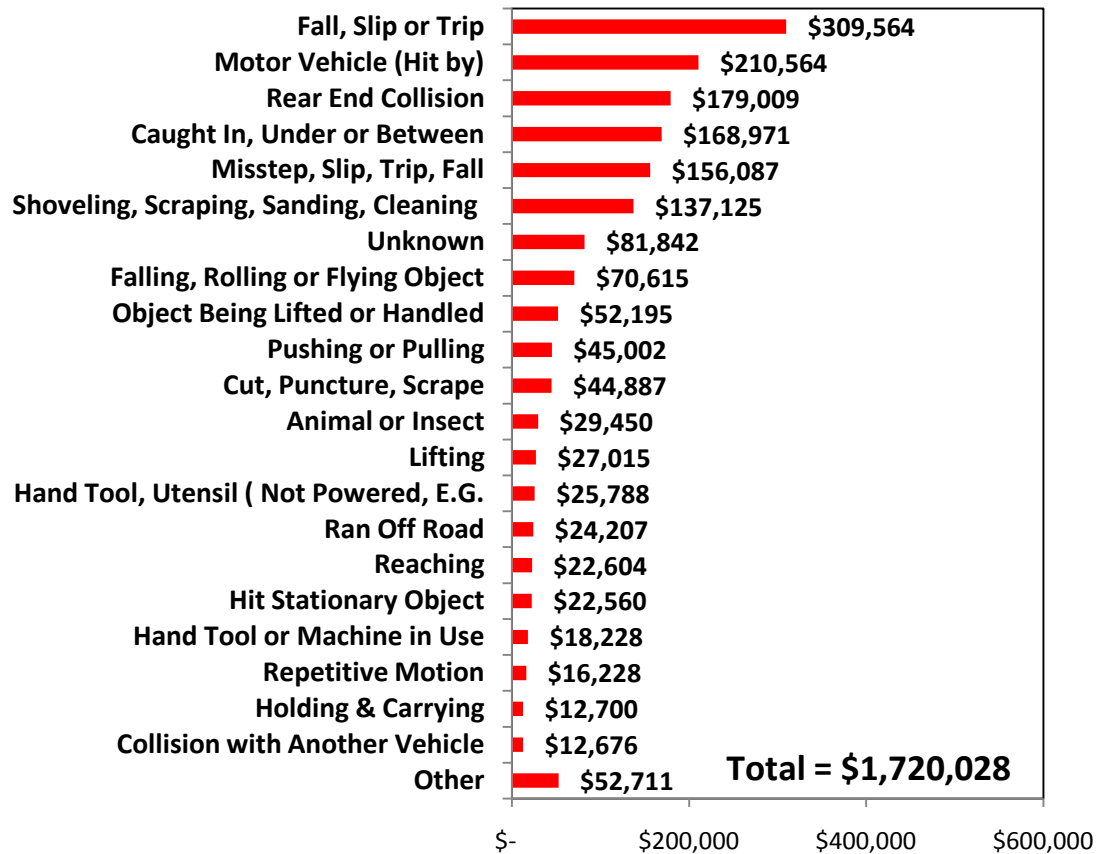
Other Body Parts

Chest (Ribs, Sternum, Soft Tissue)	Lower Extremities (Legs, Multiple Inj. Comb. Part)
Wrist(s) & Hand(s)	Mouth (Lips, Tongue, Throat, Taste)
Hip	Teeth-Tooth
Nose (Includes Nasal Passage, Sense of Smell)	Toe (GREAT)
Toe(s)	Upper Arm (Humerus)
Unknown	Upper Extremities (Multiple to Arms, Excluding Wr)
Buttocks	Vertebrae
Ear(s) (Eardrum)	

3. Dollar Loss by Cause of Injuries

From the database, the following information about dollar loss by cause of incidents was analyzed and the resultant cause of expense was also picked up. In summary, of the highest and the lowest cause of expense, hand fall, slip, or trip accounted for \$309,564, followed by incidents that resulted from being struck by a vehicle or a rear end collision, which accounted for \$210,564 and \$179,009. Among the lowest cause of incidents by dollar loss were, results from holding or carrying, and collision with another vehicle with \$12,700 and \$12,676, respectively. A detail graphical representation can be seen on chart below. Table below includes miscellaneous causes of injuries labeled as “Other.”

Dollar Loss by Cause in Division 8 (2002 - 2006)



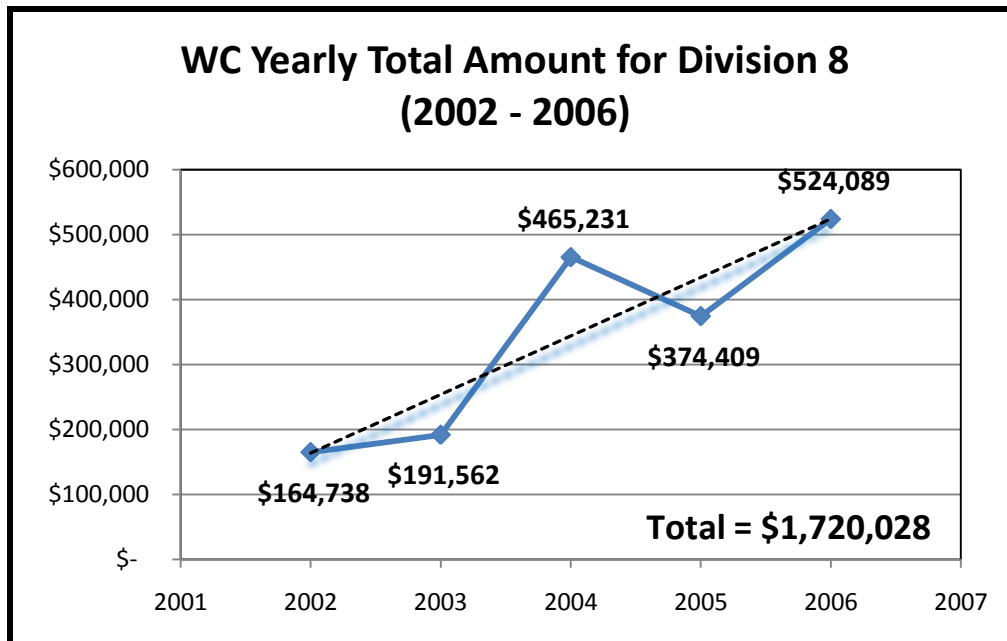
Other Causes of Injuries

Cause	Amount	Cause	Amount
Climbing or Stepping Up/Down	\$ 7,532	Jumping	\$ 1,136
Other External Factors	\$ 7,530	Struck By Other Vehicle	\$ 861
Bending	\$ 6,642	Burns	\$ 751
Other Injury (Not Otherwise Classified)	\$ 5,531	Struck By Object	\$ 731
Lay/Pour/Spray/Cleaning	\$ 4,266	Procedure Factors	\$ 698
Broken Glass	\$ 3,147	Moving Parts of Machine	\$ 555
Foreign Body in Eye	\$ 2,712	Overturned	\$ 427
Faulty People	\$ 2,657	Twisting	\$ 127
Contact with Poison Ivy/Oak	\$ 2,360	Driving/Riding	\$ 123
Heat Exhaustion	\$ 1,843	Equipment Failure	\$ 122
Machine or Machinery	\$ 1,577	Allergic Reaction/Rash	\$ 109
Puncture Wound	\$ 1,190	Digging/Drilling	\$ 84

4. Dollar Loss for All Claims

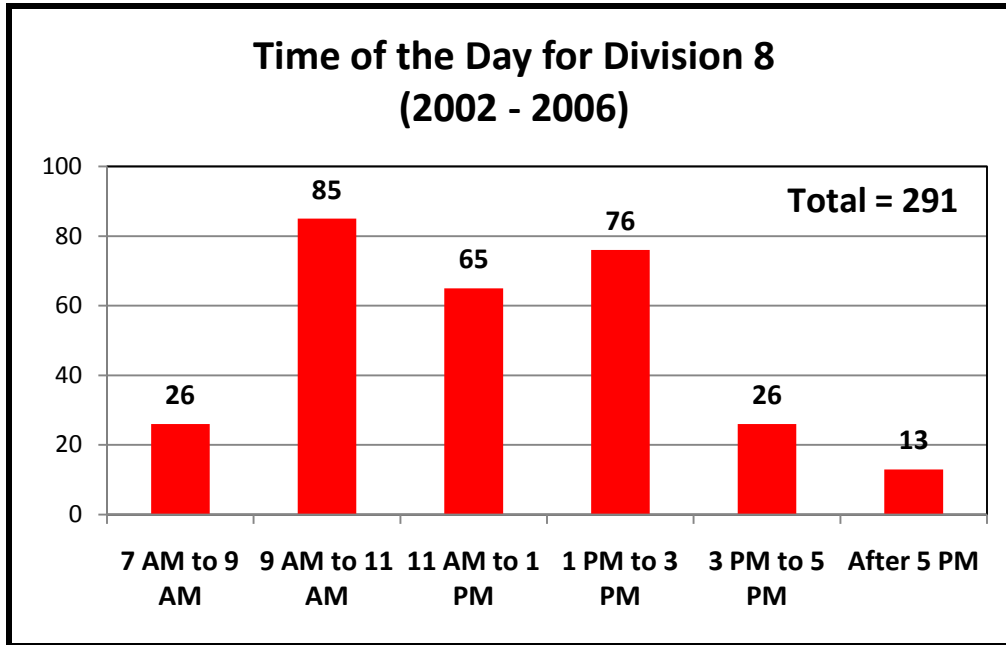
The dollar loss by all workers compensation claims signifies all claims that resulted from incidents during the study period. From 2002 to 2006, the total dollar loss by all WC claims for Division 8 was \$1.7 million. Table below summarizes each department in Division 8 with the total amount of dollar loss in descending order. Using the check date, the total dollar loss amount of \$1,720,028 is broken out by each year, as shown on the graph with a very strong ascending trend.

Dollar Loss by All WC Claims (2002 – 2006) Division 8 Total = \$1,720,028			
Dept.	Amount	Dept.	Amount
150367	\$ 257,204	150783	\$ 17,464
150363	\$ 231,961	150365	\$ 15,990
150357	\$ 181,833	150382	\$ 15,346
150360	\$ 155,435	150373	\$ 13,240
150368	\$ 150,233	150370	\$ 12,613
150359	\$ 146,108	150784	\$ 11,075
150380	\$ 98,490	150372	\$ 3,716
150366	\$ 91,281	150377	\$ 2,531
150780	\$ 82,530	150369	\$ 1,347
150364	\$ 50,276	150781	\$ 973
150779	\$ 47,370	150371	\$ 947
150361	\$ 40,297	150378	\$ 604
150376	\$ 25,499	150786	\$ 429
150358	\$ 23,026	150379	\$ 324
150375	\$ 21,015	3080	\$ 320
150362	\$ 20,486	150782	\$ 67



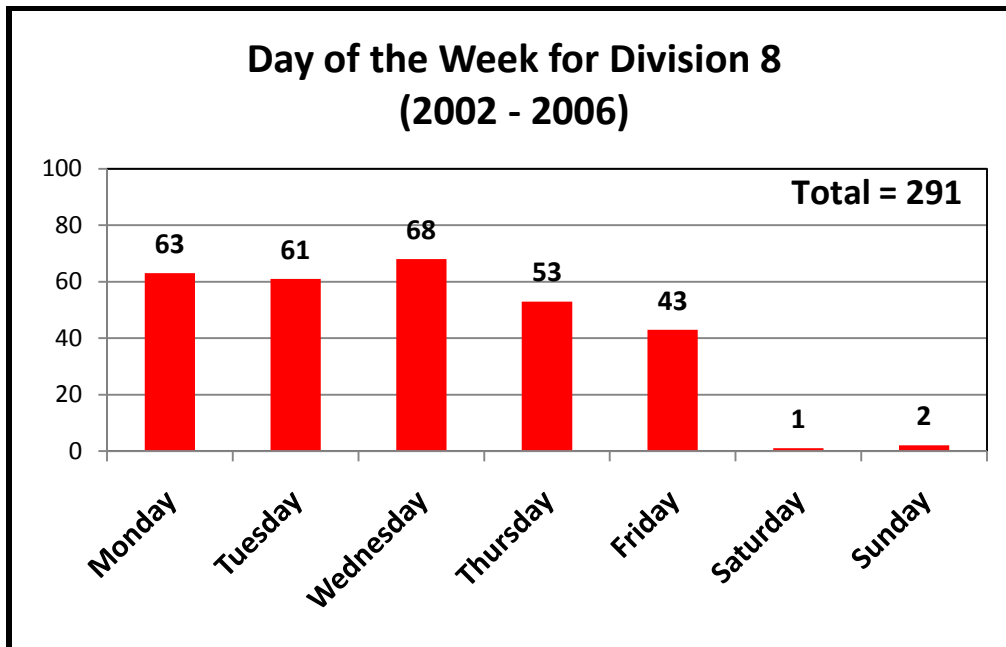
5. Time of the Day

Time of the day analysis reflects all incidents that occurred in Division 8 in six different time groups. Most incidents occurred during the morning hours between 9 AM to 11 AM with a total of 85 incidents, while 1 PM to 3 PM had second most incidents with a total of 76. There were 13 incidents that occurred after 5 PM.



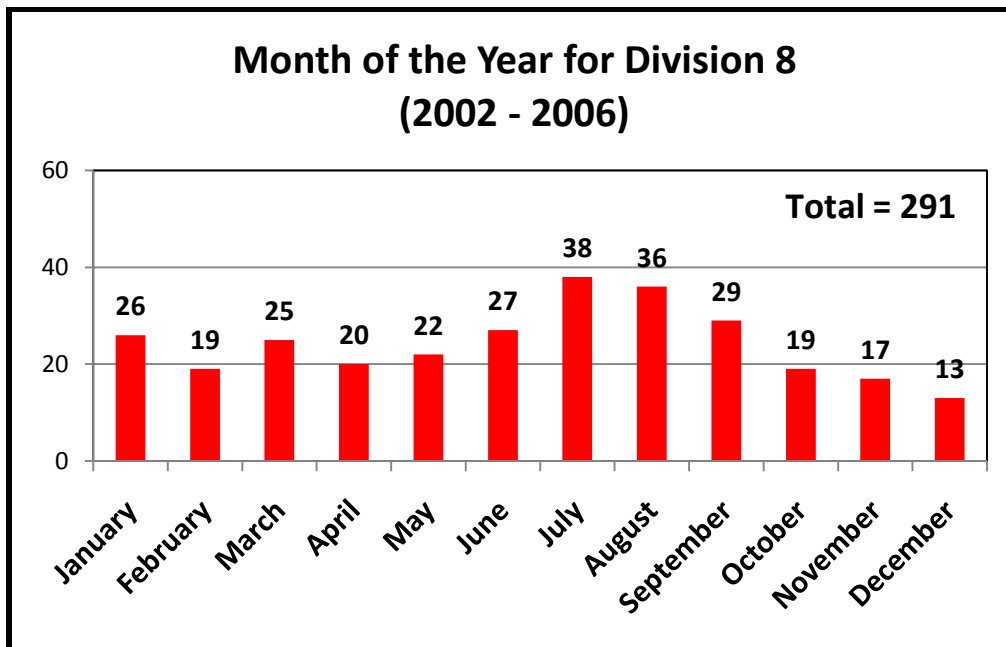
6. Day of the week

The greatest number of incidents with a total of 68 occurred on Wednesday, as can be seen from the graph. Monday and Tuesday registered second and third place in the number of incidents occurrence with 63 and 61, respectively.



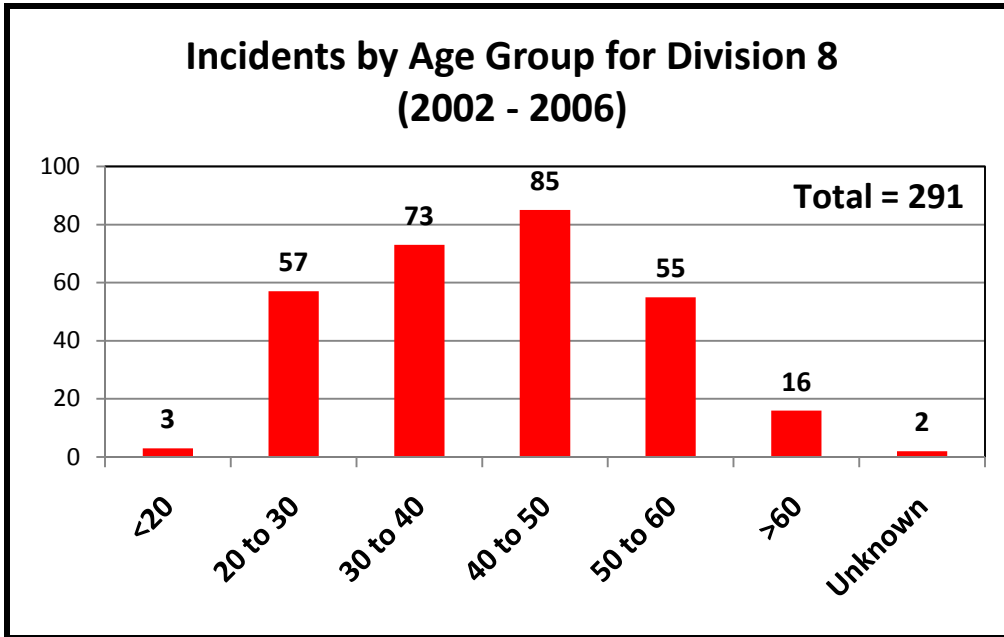
7. Month of the year

In analyzing incidents by month of the year, July recorded the most incidents with a total of 38 incidents. Second and third greatest amounts were in August and September with 36 and 29, respectively. December had the least number of incidents with a total of 13.



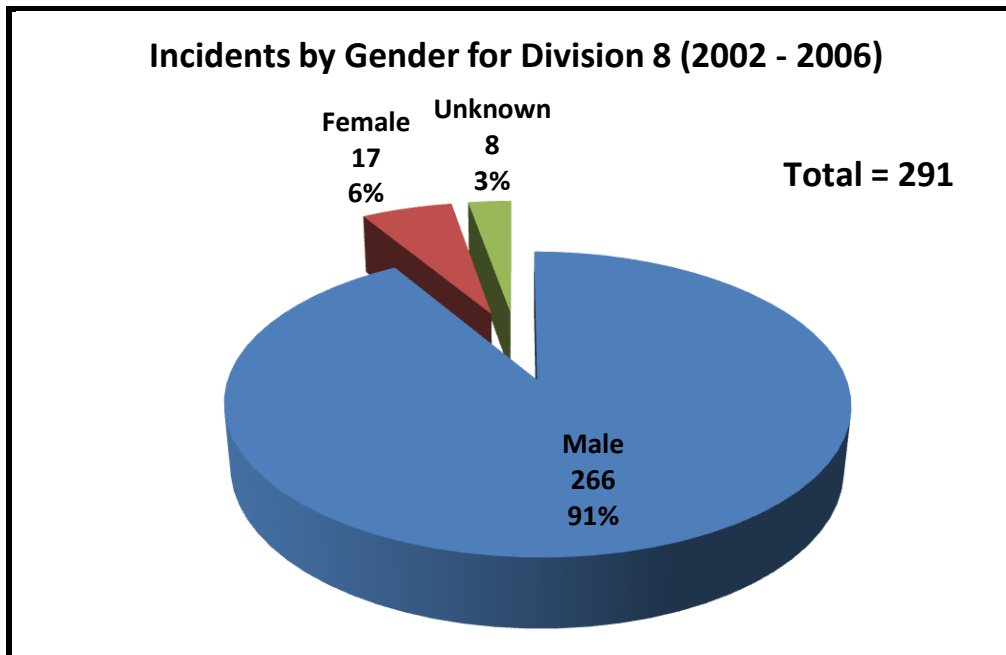
8. Incidents by Age Group

The graph below displays the incidents separated into different age groups for each division. Ages 40 to 50 years had the greatest amount of incidents with 85. The second greatest number of incidents occurred in the 30 to 40 year old group with a total of 73. The least number of incidents occurred in the unknown with 2 incidents.



9. Incidents by Gender

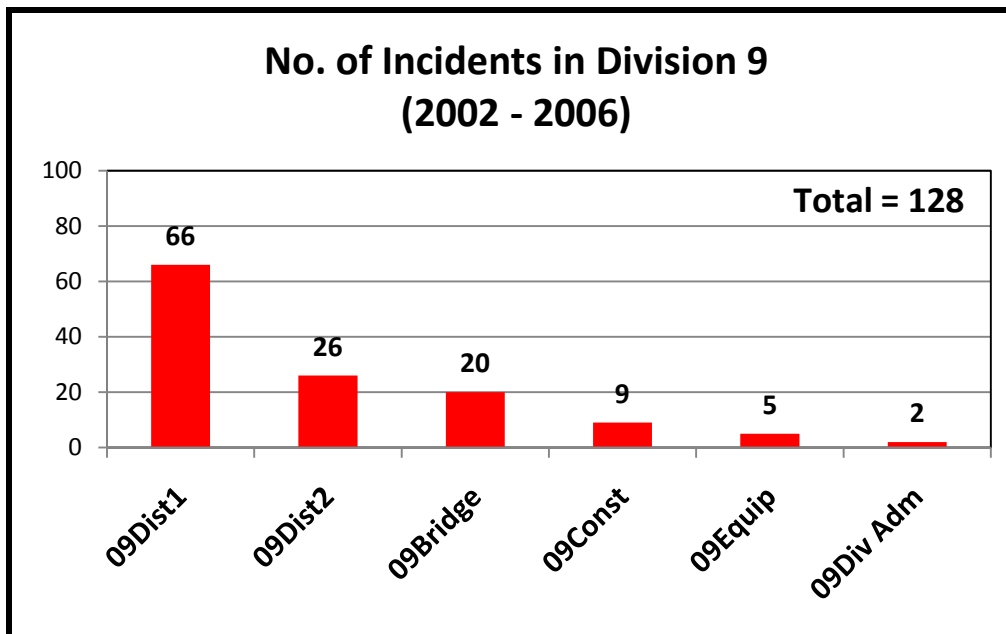
The graph below displays the gender breakdown for each division. The chart shows that 91% of men are involved in the incidents, followed by 6% involving females. The remaining percentage is in the unknown category with 3%.



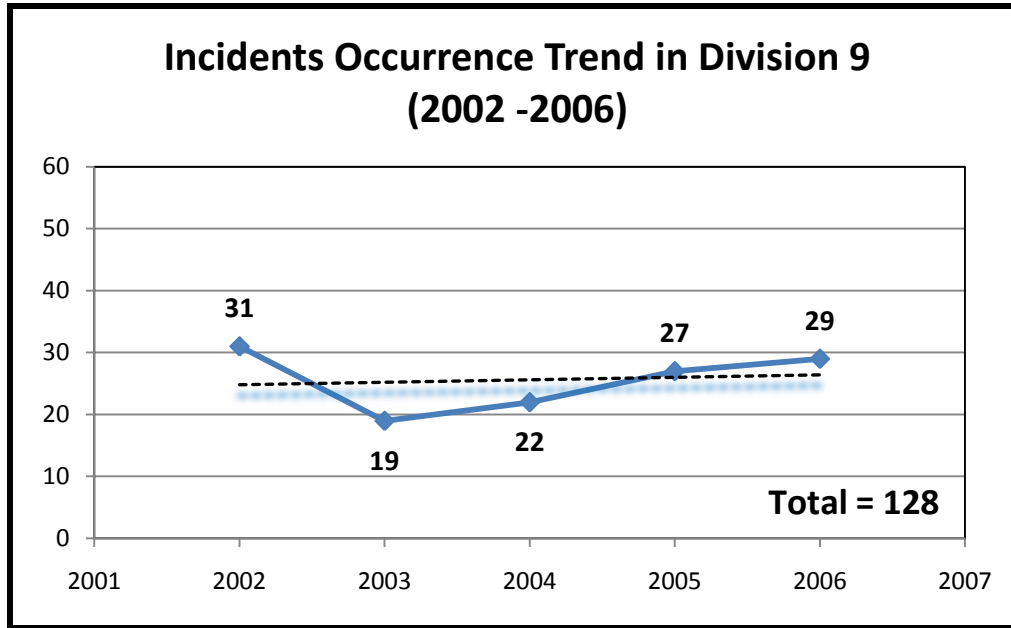
DIVISION 9

1. Number of Incidents

According to the analysis from the database, the total numbers of incidents for Division 9 from 2002-2006 in each office totaled 128 incidents. District 1 had the most incidents with 66 incidents, while District 2 had 26 incidents. The Bridge office had 20 incidents, Construction with 9, and Equipment with 5 incidents. The Administration department had the least incidents with only 2.

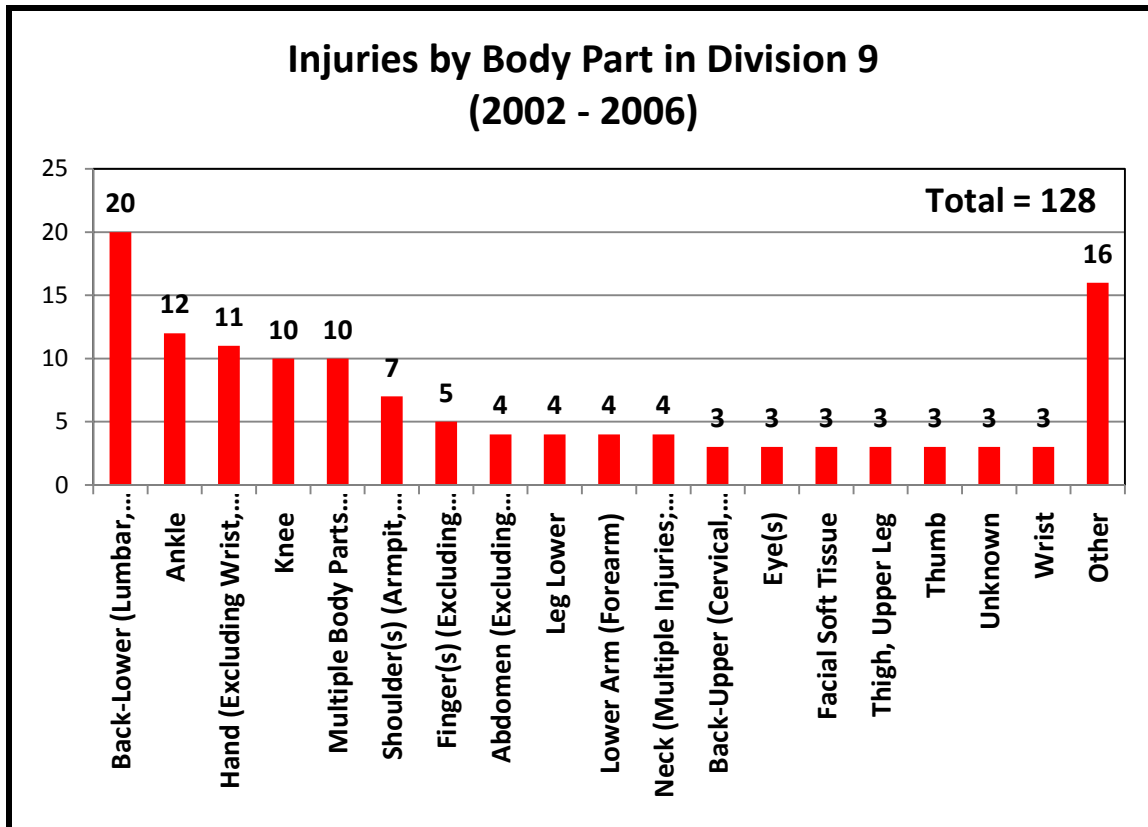


The graph below shows the number of incidents broken down into the 2002-2006 period for Division 9. The graph seems to have a slowly increasing trend line. It starts at 31 incidents in 2002, decreases to 19 incidents in 2003. It starts to increase in 2004 through 2006 ending at 29 incidents in 2006.



2. Number of Injuries by Body Part

The analysis by body part reflects the parts of the body affected during each incident in Division 9 and other offices and districts. The greatest number of injuries affected one's lower back with total count of 20 incidents; followed by ankles and hands with 12 and 11, respectively. A graphic representation of the number of incidents by body part can be seen below. Table lists remaining body parts grouped as "Other."

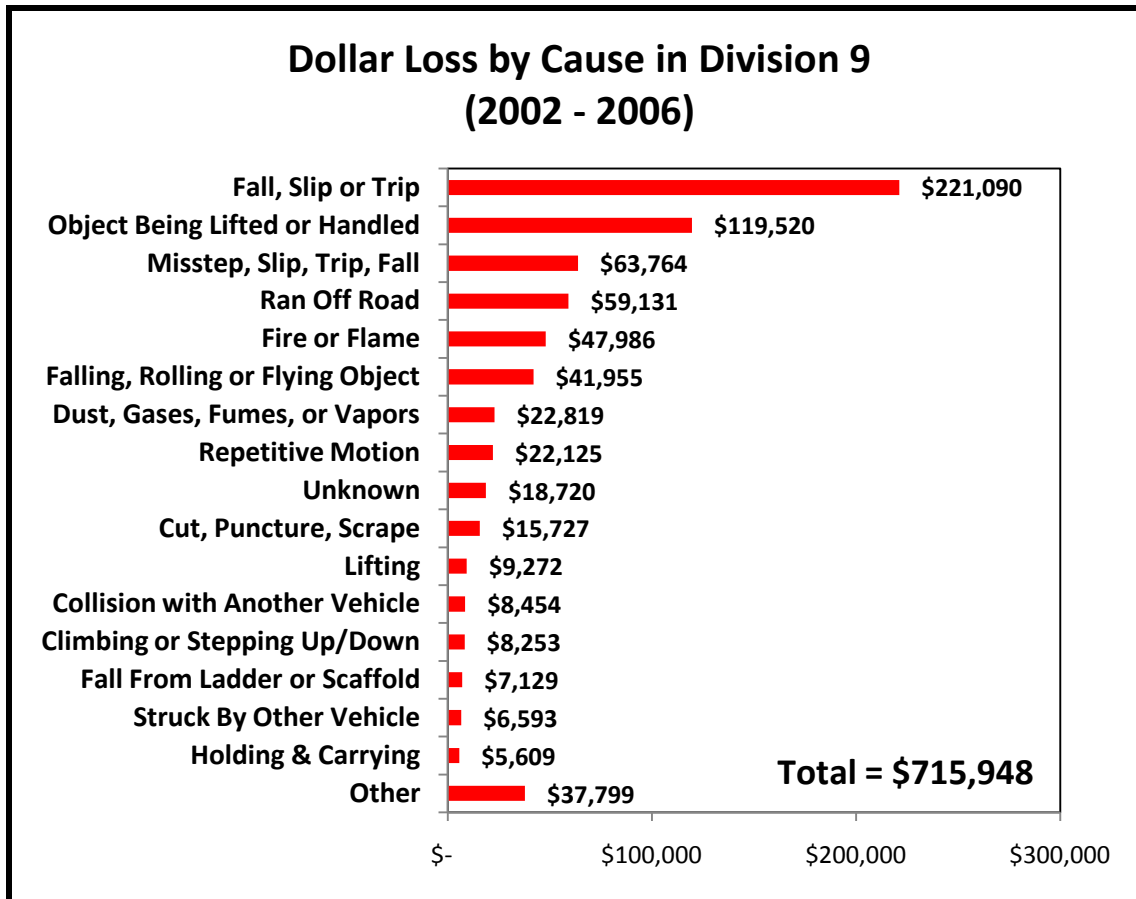


Other Body Parts

Chest (Ribs, Sternum, Soft Tissue)	Lower Extremities (Legs, Multiple Inj. To Comb. Part)
Elbow (Radial Head)	Lungs
Foot	Mouth (Lips, Tongue, Throat, Taste)
Head (Multiple Injuries; Combination of Parts)	Teeth-Tooth
Upper Arm (Humerus)	Wrist(s) & Hand(s)
Ear(s) (Eardrum)	

3. Dollar Loss by Cause of Injuries

From the database, the following information about dollar loss by cause of incidents was analyzed and the resultant cause of expense was also picked up. In summary, of the highest and the lowest cause of expense, fall, slip, or trip accounted for \$221,090, followed by incidents that resulted from an object being lifting or handled and third caused by a misstep, slip, trip or fall, which accounted for \$119,520 and \$63,764. Among the lowest cause of incidents by dollar loss were, results from being caught struck by another vehicle, and holding/carrying an object with \$6,593 and \$5,609, respectively. A detail graphical representation can be seen on chart below. Table below includes miscellaneous causes of injuries labeled as “Other.”



Other Causes of Injuries

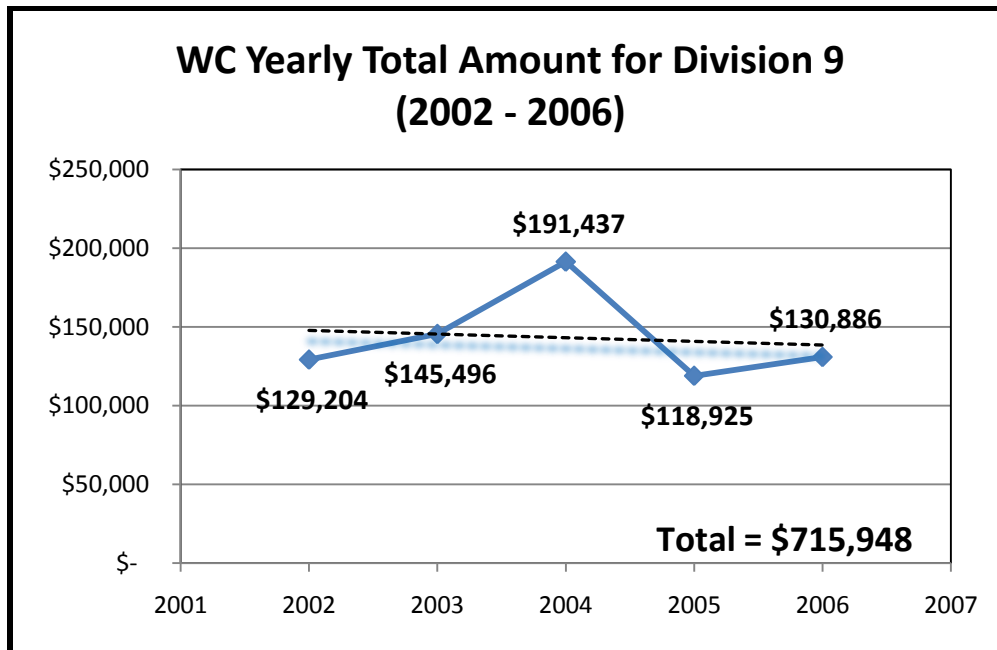
Cause	Amount	Cause	Amount
Overtuned	\$ 4,432	Jumping	\$ 744
Moving Parts of Machine	\$ 4,353	Foreign Body in Eye	\$ 688
Caught In, Under or Between	\$ 4,152	Collapsing Matels (Eath Slides)	\$ 651
Rear End Collision	\$ 3,878	Hand Tool or Machine in Use	\$ 541
Pushing or Pulling	\$ 3,604	Motor Vehicle (Hit by)	\$ 519
Vehicle Upset (Overturned, etc.)	\$ 3,197	Struck By Object	\$ 274
Machine or Machinery	\$ 2,014	Running or Jogging	\$ 268
Dizzy, Fainted, Passed Out	\$ 1,502	Other External Factors	\$ 216
Contact with Poison Ivy/Oak	\$ 1,460	Bending	\$ 176
Burns	\$ 1,460	Puncture Wound	\$ 157
Animal or Insect	\$ 1,315	Turning	\$ 98
Liquid or Grease Spills	\$ 1,159	Shoveling, Scraping, Sanding, Cleaning	\$ 25
Twisting	\$ 916		

4. Dollar Loss for All Claims

The dollar loss by all workers compensation claims signifies all claims that resulted from incidents during the study period. From 2002 to 2006, the total dollar loss by all WC claims

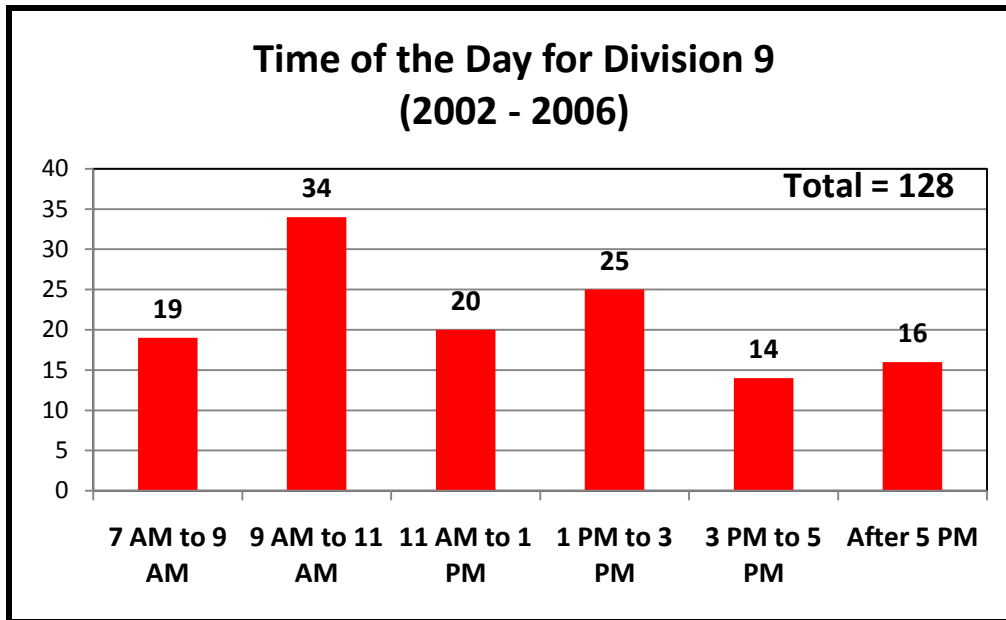
for Division 9 was \$715,948. Table below summarizes each department in Division 9 with the total amount of dollar loss in descending order. Using the check date, the total dollar loss amount of \$715,948 is broken out by each year, as shown on the graph with a slight declining trend.

Dollar Loss by All WC Claims (2002 – 2006) Division 9 Total = \$715,948			
Dept.	Amount	Dept.	Amount
150383	\$ 159,085	150388	\$ 9,076
150788	\$ 141,523	150390	\$ 6,862
150386	\$ 130,528	150400	\$ 5,609
150397	\$ 79,892	150402	\$ 4,972
150385	\$ 35,575	150392	\$ 4,622
150396	\$ 32,217	150790	\$ 4,386
150099	\$ 23,280	150401	\$ 1,460
150387	\$ 19,118	150391	\$ 1,215
150384	\$ 16,178	150399	\$ 1,174
150389	\$ 15,192	150393	\$ 670
150097	\$ 12,822	150793	\$ 291
150395	\$ 10,201		



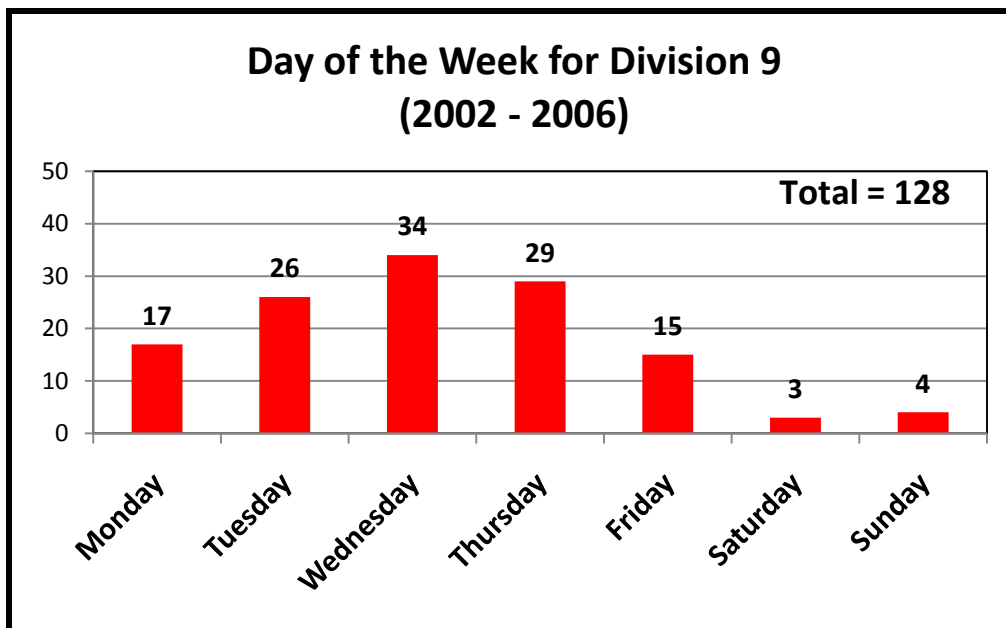
5. Time of the day

Time of the day analysis reflects all incidents that occurred in Division 9 in six different time groups. Most incidents occurred during the morning hours between 9 AM to 11 AM with a total of 34 incidents, while 1 PM to 3 PM had second most incidents with a total of 25. There were 14 incidents that occurred between 3 PM to 5 PM.



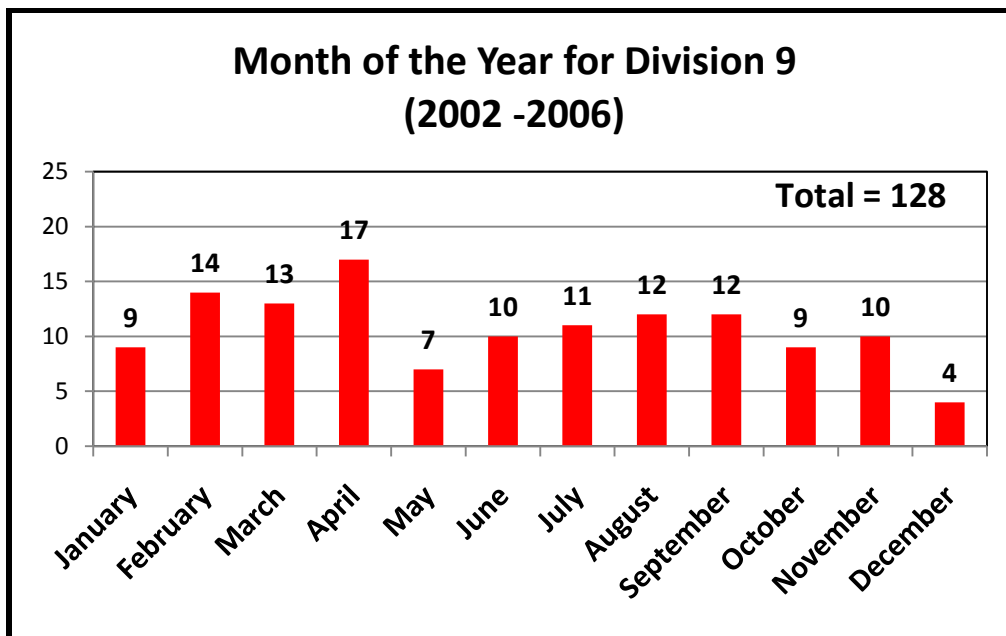
6. Day of the Week

The greatest number of incidents with a total of 34 incidents occurred on Wednesday, as can be seen from the graph. Thursday and Tuesday registered second and third place in the number of incidents occurrence with 29 and 26, respectively.



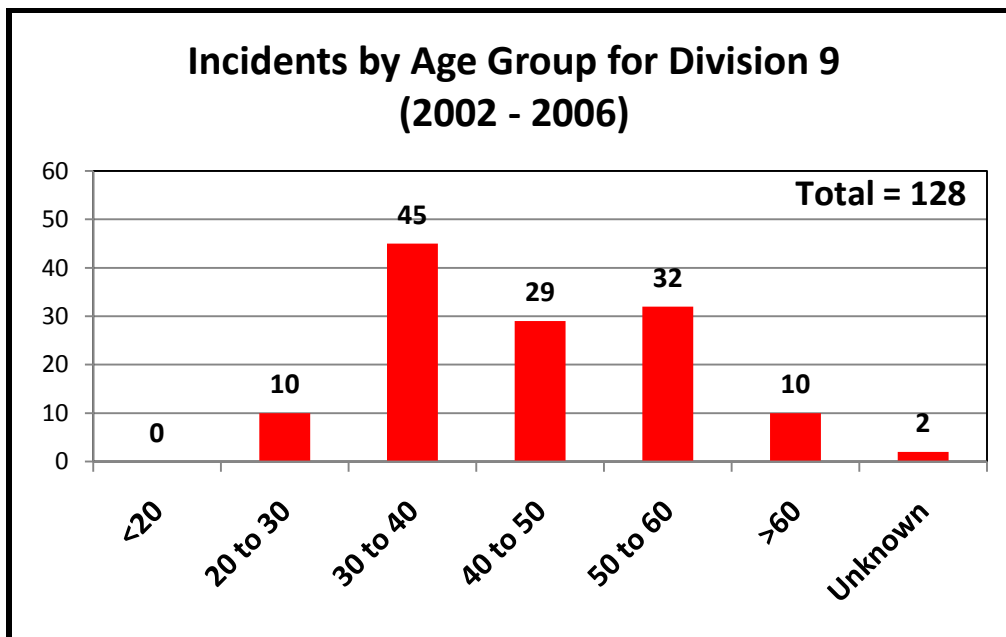
7. Month of the Year

In analyzing incidents by month of the year, April recorded the most incidents with a total of 17 incidents. Second and third greatest amounts were in February and March with 14 and 13, respectively. December had the least number of incidents with a total of 4.



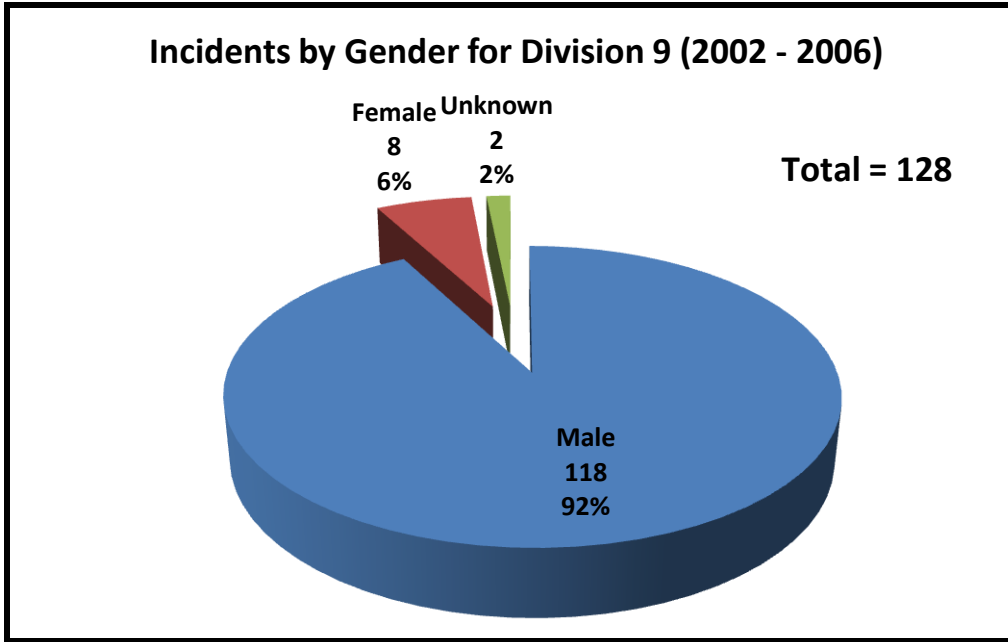
8. Incidents by Age Group

The graph below displays the incidents separated into different age groups for each division. Ages 30 to 40 years had the greatest amount of incidents with 45. The second greatest number of incidents occurred in the 50 to 60 year old group with a total of 32. The least number of incidents occurred in the less than 20 years old category with no incidents.



9. Incidents by Gender

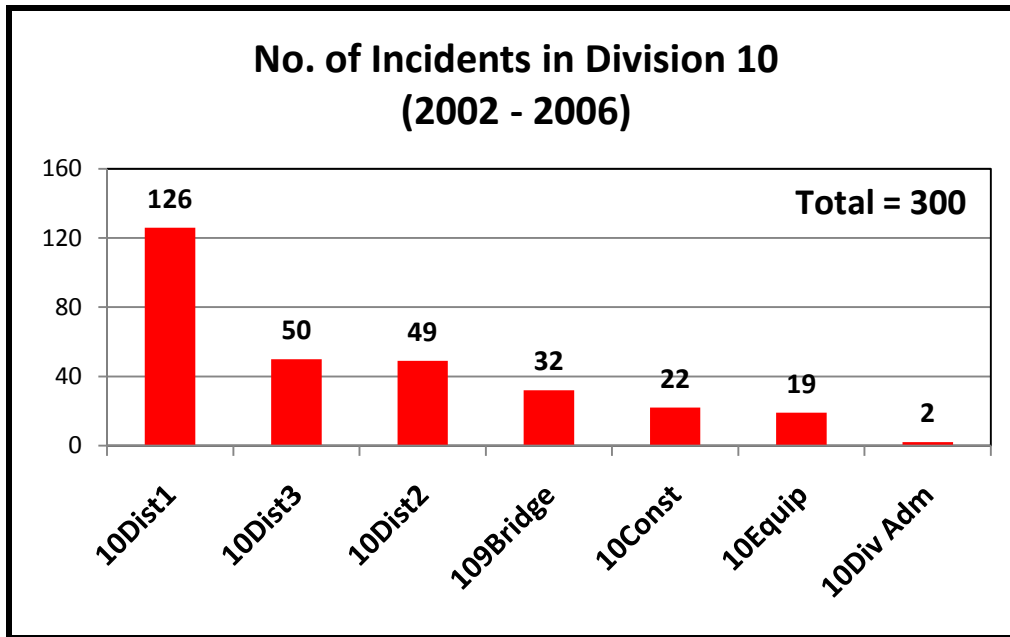
The graph below displays the gender breakdown for each division. The chart shows that 92% of men are involved in the incidents, followed by 6% involving females. The remaining percentage is in the unknown category with 2%.



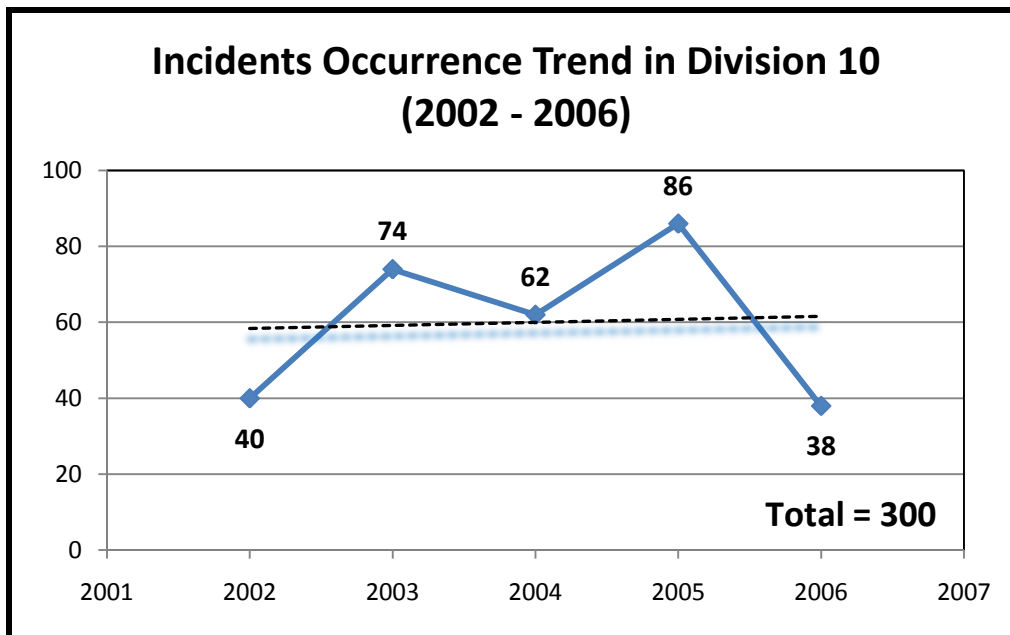
DIVISION 10

1. Number of Incidents

According to the analysis from the database, the total numbers of incidents for Division 10 from 2002-2006 in each office totaled 300 incidents. District 1 had the most incidents with 126 incidents, while District 3 and District 2 had 50 incidents and 49 incidents, respectively. The Bridge office had 32 incidents, Construction with 22, and Equipment with 19 incidents. The Administration department had the least incidents with only 2.



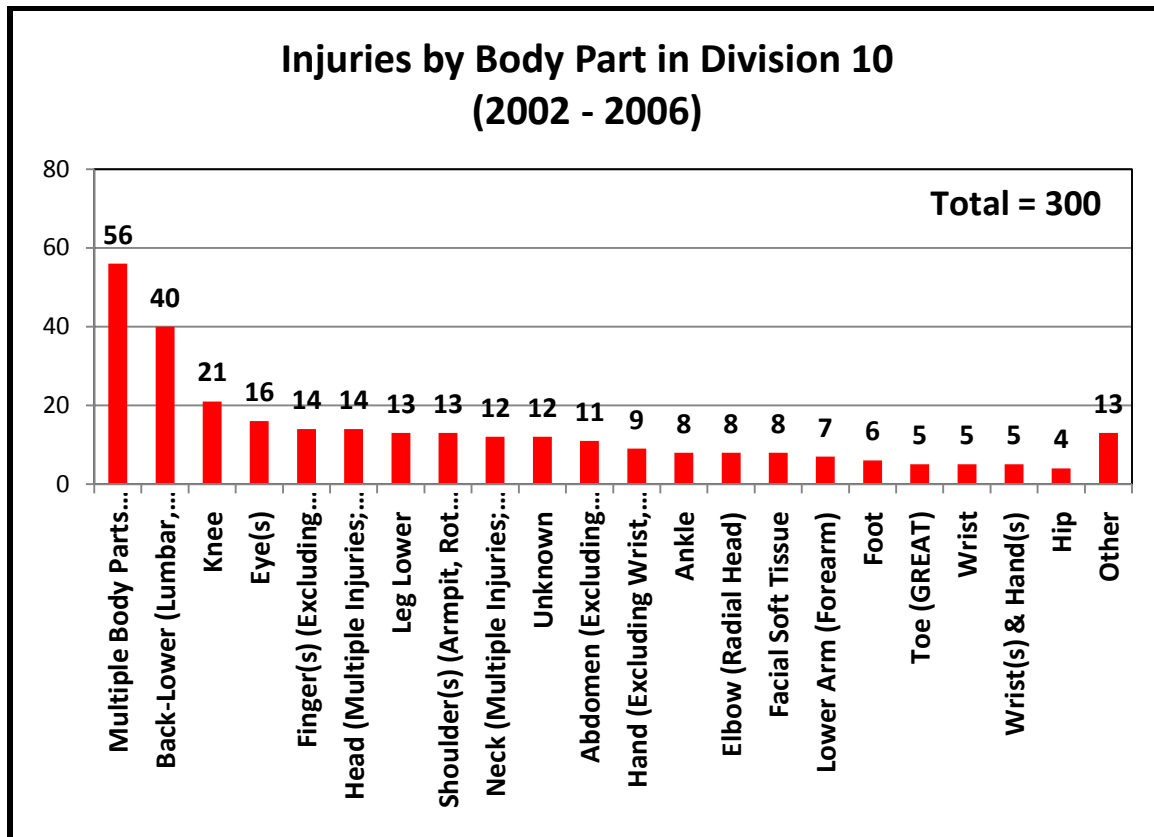
The graph below shows the number of incidents broken down into the 2002-2006 period for Division 10. The graph has a slightly increasing trend line. It starts at 40 incidents in 2002, increases in 2003-2005 up to 86 incidents. It drops back down to 38 incidents in 2006.



2. Number of Injuries by Body Part

The analysis by body part reflects the parts of the body affected during each incident in Division 10 and other offices and districts. The greatest number of injuries affected multiple body parts with a total count of 56 incidents, followed by lower back and knees with 40 and

21, respectively. A graphical representation of the number of incidents by body part can be seen below. Table lists remaining body parts grouped as “Other.”



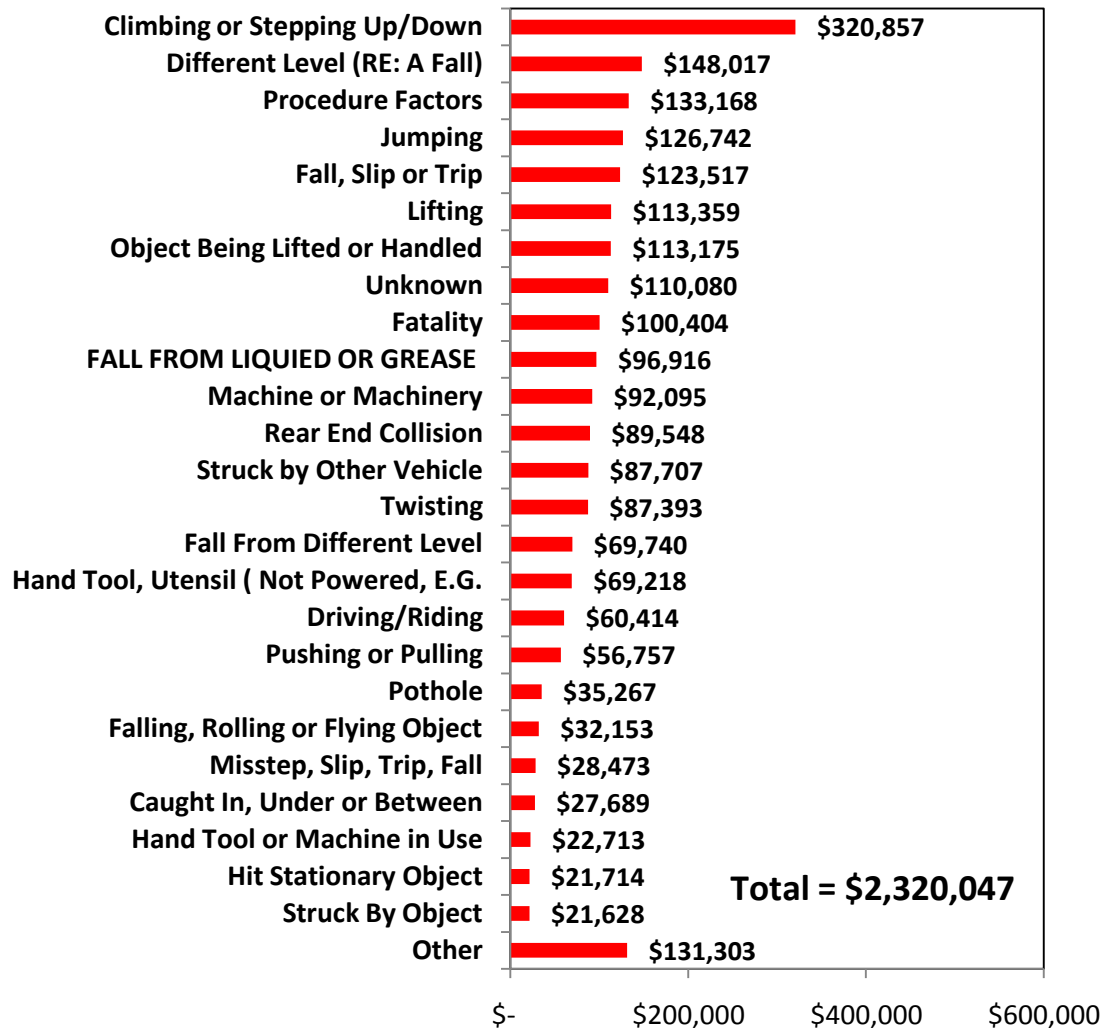
Other Body Parts

Back-Upper (Cervical, Thoracic Area)	No Physical Injury (Mental Disorder)
Chest (Ribs, Sternum, Soft Tissue)	Teeth-Tooth
Ear(s) (Eardrum)	Thigh, Upper Leg
Facial Bones	Upper Arm (Humerus)
Mouth (Lips, Tongue, Throat, Taste)	Buttocks

3. Dollar Loss by Cause of Injuries

From the database, the following information about dollar loss by cause of incidents was analyzed and the resultant cause of expense was also picked up. In summary, of the highest and the lowest cause of expense, climbing or stepping up/down accounted for \$320,857, followed by incidents that resulted different levels or procedure factors, which accounted for \$148,017 and \$133,168. Among the lowest cause of incidents by dollar loss were, results from hitting a stationary object, and being struck by an object with \$21,714 and \$21,628, respectively. A detail graphical representation can be seen on chart below. Table below includes miscellaneous causes of injuries labeled as “Other.”

Dollar Loss by Cause in Division 10 (2002 - 2006)



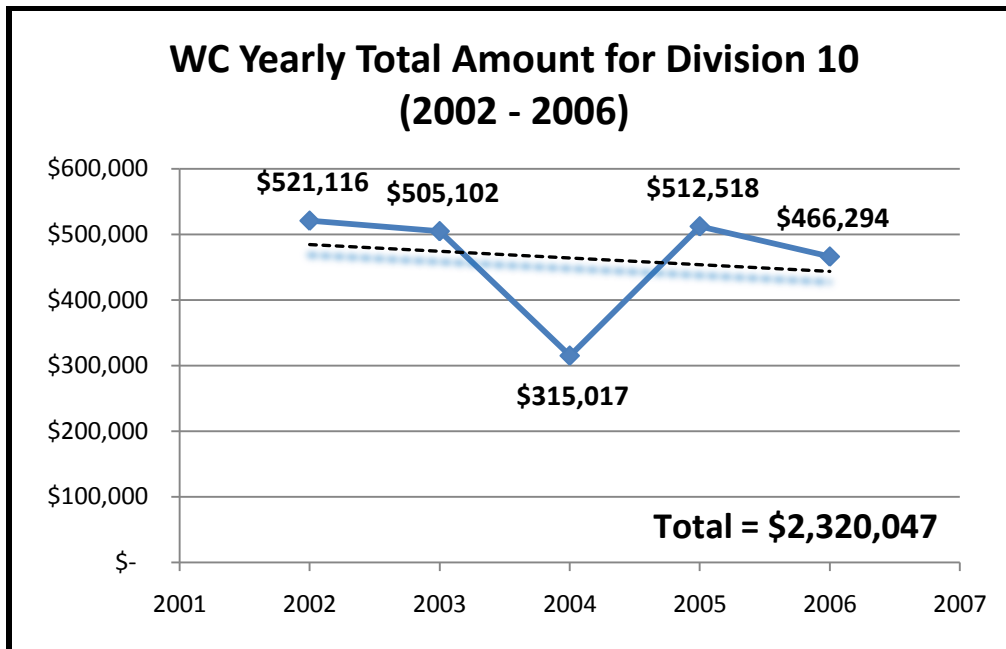
Other Causes of Injuries

Cause	Amount	Cause	Amount
Collision with Another Vehicle	\$ 17,977	Fall From Ladder or Scaffold	\$ 1,122
Reaching	\$ 17,761	Moving Parts of Machine	\$ 1,121
Backing	\$ 14,622	Stairs	\$ 829
Bending	\$ 14,541	Overturned	\$ 529
Equipment Failure	\$ 13,478	Motor Vehicle (Hit by)	\$ 510
Dust, Gases, Fumes, or Vapors	\$ 10,525	Paint on Vehicle	\$ 500
Ran Off Road	\$ 7,469	Broken Mirrors	\$ 461
Same Level (re: A Fall)	\$ 4,977	Repetitive Motion	\$ 387
Cut, Puncture, Scrape	\$ 3,996	Holding & Carrying	\$ 330
Animal or Insect	\$ 3,694	Other Injury (Not Otherwise Classified)	\$ 289
Heat Exhaustion	\$ 3,130	Welding Flash - Injury in Eyes	\$ 229
Foreign Body in Eye	\$ 2,611	Puncture Wound	\$ 193
Faulty People	\$ 2,537	Slipped, Did Not Fall Foot	\$ 177
Shoveling, Scraping, Sanding, Cleaning	\$ 1,956	Burns	\$ 150
Contact with Poison Ivy/Oak	\$ 1,678	Allergic Reaction/Rash	\$ 135
Overturned or Thrown from Machinery	\$ 1,618	Lay/Pour/Spray/cleaning	\$ 123
Dizzy, Fainted, Passed Out	\$ 1,593	Foreign Body in Ear	\$ 53

4. Dollar Loss for All Claims

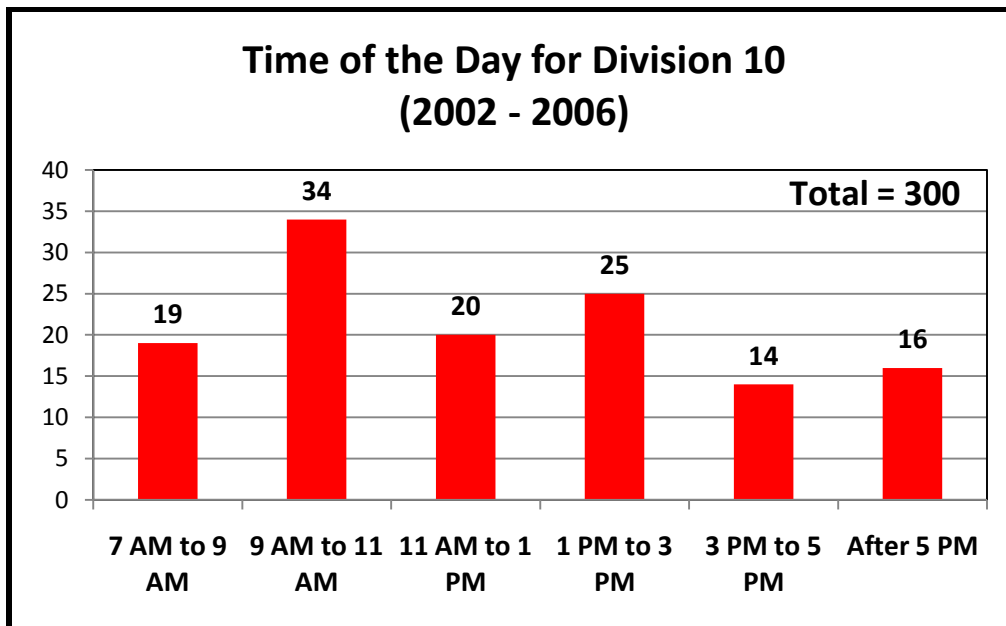
The dollar loss by all workers compensation claims signifies all claims that resulted from incidents during the study period. From 2002 to 2006, the total dollar loss by all WC claims for Division 10 was \$2.3 million. Table below summarizes each department in Division 10 with the total amount of dollar loss in descending order. Using the check date, the total dollar loss amount of \$2,320,047 is broken out by each year, as shown on the graph with a gradual descending trend.

Dollar Loss by All WC Claims (2002 – 2006) Division 10 Total = \$2,320,047			
Dept.	Amount	Dept.	Amount
150419	\$ 451,737	150411	\$ 23,750
150407	\$ 446,433	150412	\$ 21,415
150410	\$ 429,044	150795	\$ 20,707
150416	\$ 131,273	150415	\$ 9,989
150420	\$ 123,689	150426	\$ 9,789
150405	\$ 122,986	150425	\$ 5,277
150417	\$ 104,442	150800	\$ 1,909
150796	\$ 89,484	150418	\$ 1,446
150406	\$ 89,470	150423	\$ 607
150413	\$ 47,395	150102	\$ 425
150404	\$ 43,608	150424	\$ 320
150409	\$ 40,311	150427	\$ 318
150422	\$ 40,100	150931	\$ 290
150414	\$ 35,802	150797	\$ 188
150408	\$ 27,738	150103	\$ 103



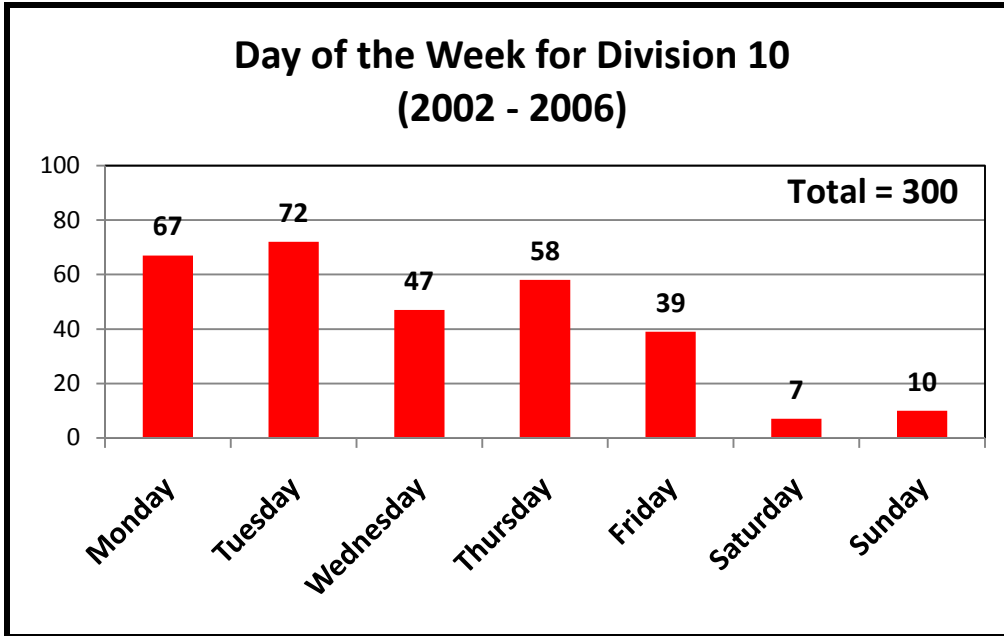
5. Time of the Day

Time of the day analysis reflects all incidents that occurred in Division 10 in six different time groups. Most incidents occurred during the morning hours between 9 AM to 11 AM with a total of 34 incidents, while 1 PM to 3 PM had second most incidents with a total of 25. There were 14 incidents that occurred between 3 PM to 5 PM.



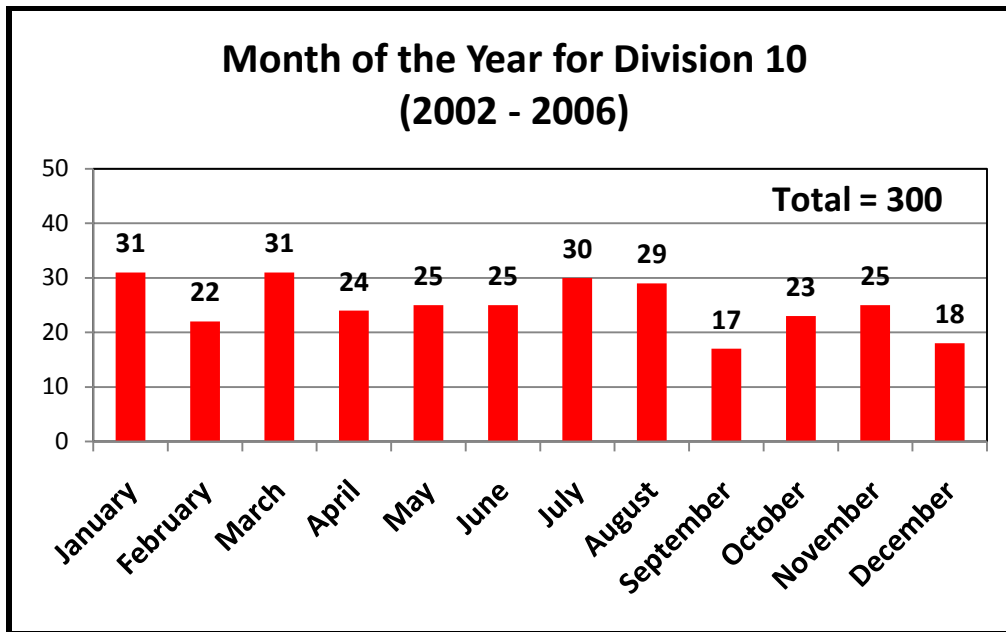
6. Day of the Week

The greatest number of incidents with a total of 72 incidents occurred on Tuesday, as can be seen from the graph. Monday and Thursday registered second and third place in the number of incidents occurrence with 67 and 58, respectively.



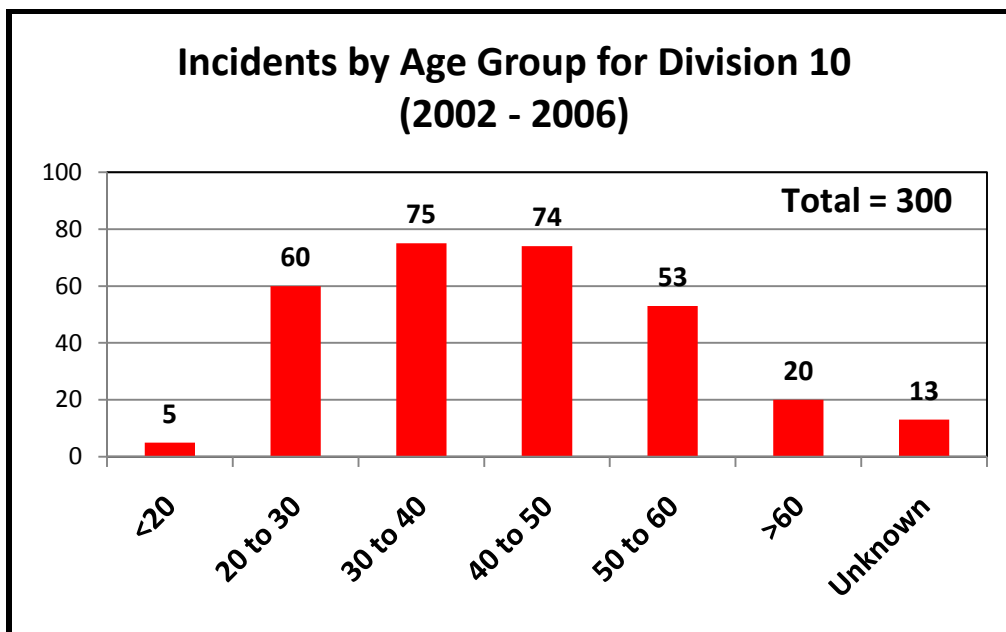
7. Month of the year

In analyzing incidents by month of the year, January and March recorded the most incidents with a total of 31 incidents. Second and third greatest amounts were in July and August with 30 and 29, respectively. September had the least number of incidents with a total of 17.



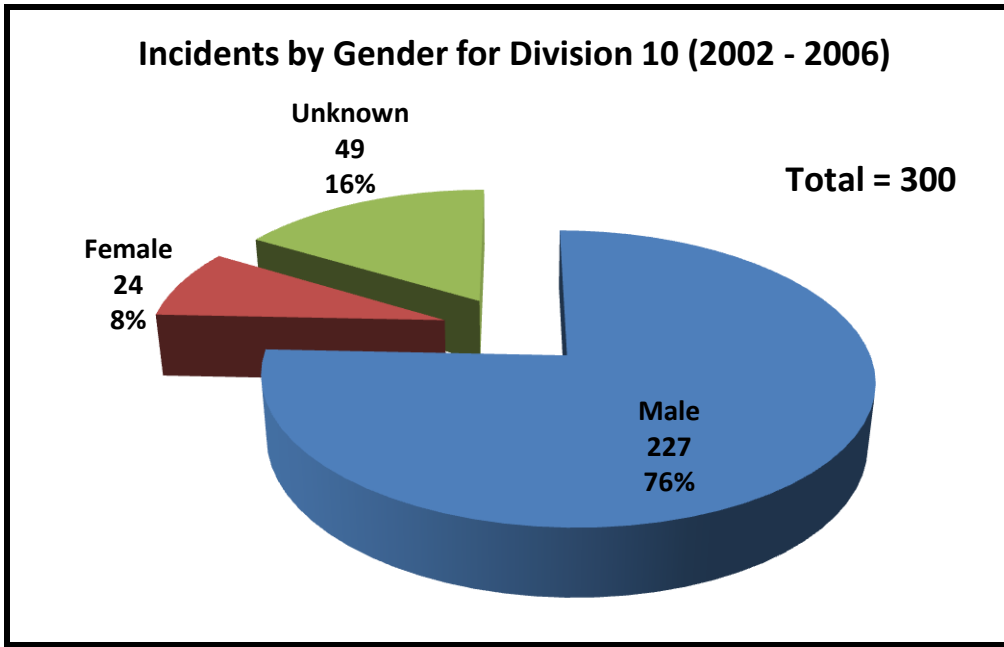
8. Incidents by Age Group

The graph below displays the incidents separated into different age groups for each division. Ages 30 to 40 years had the greatest amount of incidents with 75. The second greatest number of incidents occurred in the 40 to 50 year old group with a total of 74. The least number of incidents occurred in the less than 20 years old category with 5 incidents.



9. Incidents by Gender

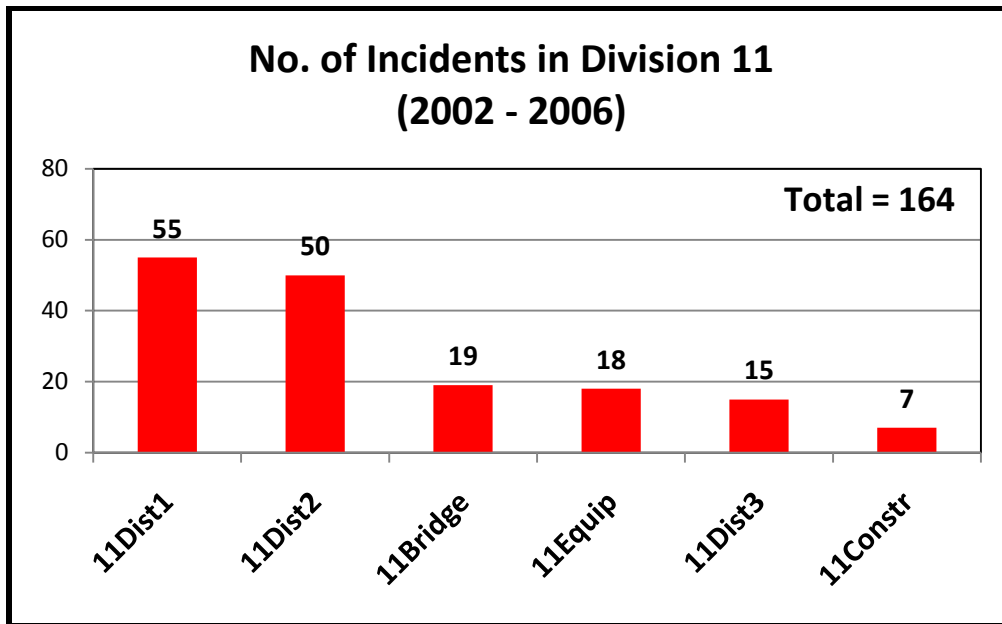
The graph below displays the gender breakdown for each division. The chart shows that 76% of men are involved in the incidents, followed by 16% in the unknown category. The remaining percentage involved females with 8%.



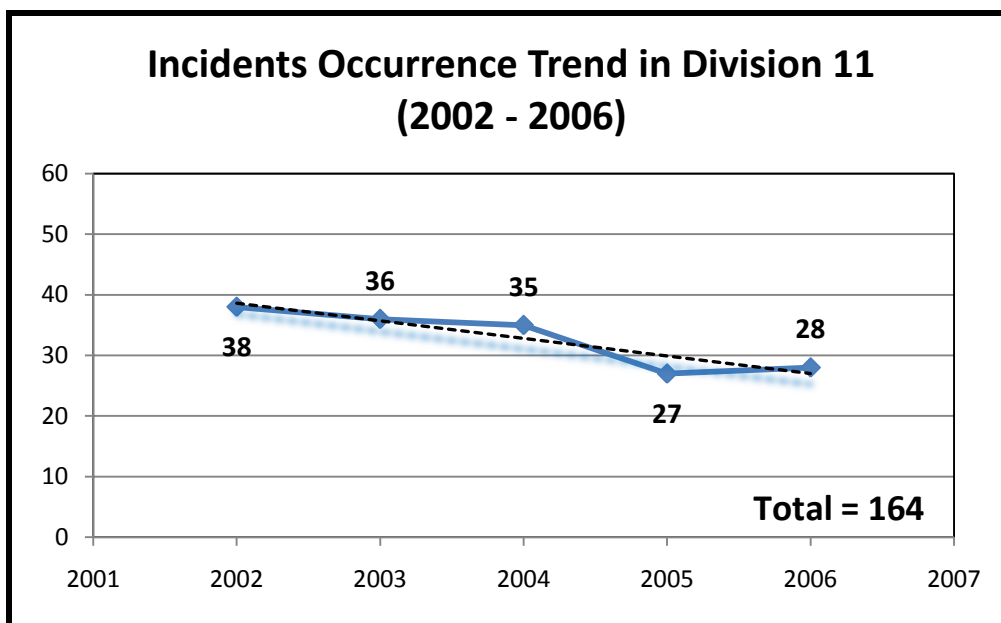
DIVISION 11

1. Number of Incidents

According to the analysis from the database, the total numbers of incidents for Division 11 from 2002-2006 in each office totaled 164 incidents. District 1 had the most incidents with 55 incidents, while District 2 had 50 incidents. The Bridge office had 19 incidents and Equipment office with 18 incidents. District 3 had a total of 15 incidents, while the Construction office had 7 incidents.



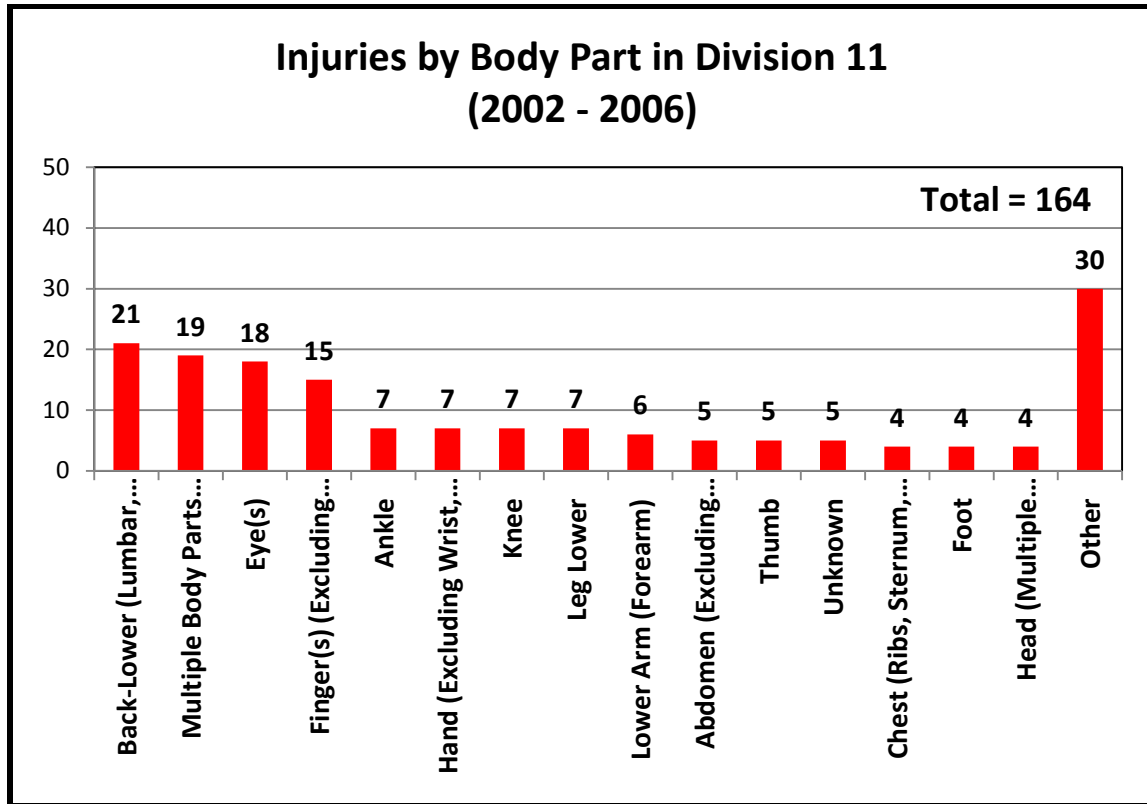
The graph below shows the number of incidents broken down into the 2002-2006 period for Division 11. The graph seems to have a fairly constant descending trend line. The total number of incidents is 164. It starts at 38 incidents in 2002, increases in 2003-2004. It drops down to 27 incidents in 2005. It ends with 28 incidents in 2006.



2. Number of Injuries by Body Part

The analysis by body part reflects the parts of the body affected during each incident in Division 11 and other offices and districts. The greatest number of injuries affected one's lower back with total count of 21, followed by multiple body parts and eyes with 19 and 18,

respectively. A graphic representation of the number of incidents by body part can be seen below. Table lists remaining body parts grouped as “Other.”



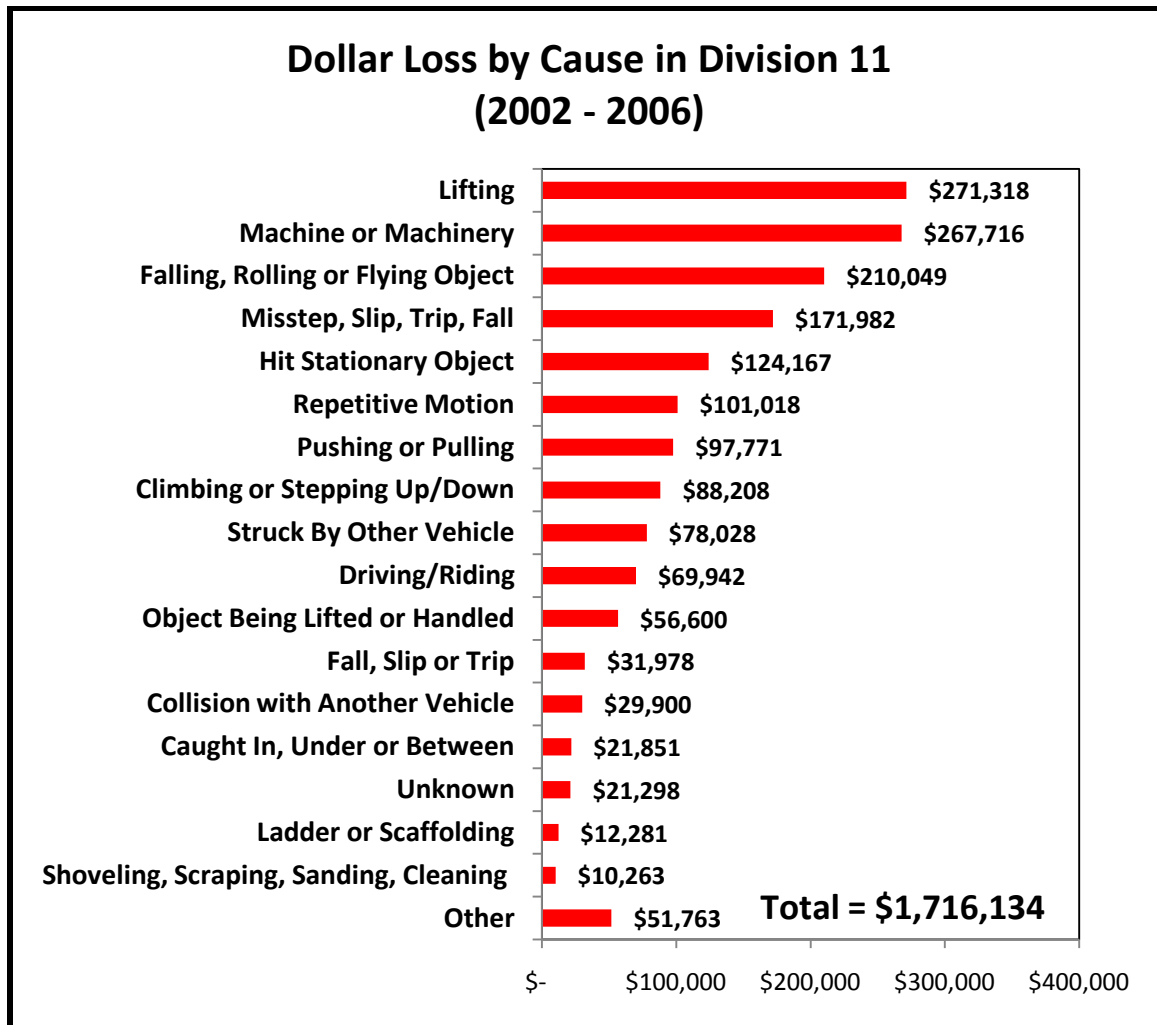
Other Body Parts

Ear(s) (Eardrum)	Nose (Includes Nasal Passage, Sense of Smell)
Elbow (Radial Head)	Facial Bones
Neck (Multiple Injuries; Combination Parts)	Hip
Shoulder(s) (Armpit, Rot Cuff, Trapezius, Clavicle)	Lower Extremities (Legs, Multiple Inj. To Comb. Part)
Wrist	Teeth-Tooth
Back-Upper (Cervical, Thoracic Area)	Thigh, Upper Leg
Facial Soft Tissue	Upper Arm (Humerus)
Mouth (Lips, Tongue, Throat, Taste)	Wrist(s) & Hand(s)

3. Dollar Loss by Cause of Injuries

From the database, the following information about dollar loss by cause of incidents was analyzed and the resultant cause of expense was also picked up. In summary, of the highest and the lowest cause of expense, lifting/carrying an object accounted for \$271,318, followed by incidents that resulted from a machine/machinery or a falling, rolling, or flying object, which accounted for \$267,716 and \$210,049. Among the lowest cause of incidents by dollar loss were, results from being on scaffolding or a ladder, and shoveling, scraping, sanding, cleaning with \$12,281 and \$10,263, respectively. A detail graphical representation can be

seen on chart below. Table below includes miscellaneous causes of injuries labeled as “Other.”



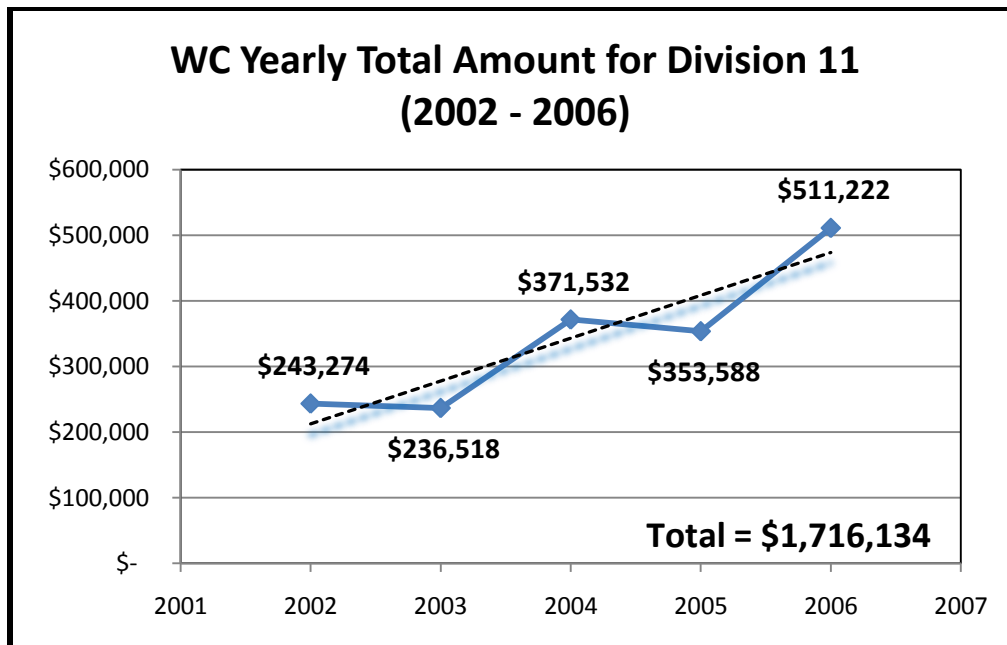
Other Causes of Injuries

Cause	Amount	Cause	Amount
Events Beyond the Injured Control	\$ 8,845	Contact with chemicals	\$ 616
Cut, Puncture, Scrape	\$ 7,844	Reaching	\$ 548
Overturned	\$ 6,929	Motor Vehicle (Hit by)	\$ 524
Holding & Carrying	\$ 5,004	Burns	\$ 456
Foreign Body in Eye	\$ 3,424	Not Applicable	\$ 367
Hand Tool, Utensil (Not Powered)	\$ 2,921	Running or Jogging	\$ 354
Ran Off Road	\$ 2,834	Rear End Collision	\$ 350
Moving Parts of Machine	\$ 2,505	Welding Flash - Injury in Eyes	\$ 284
Hand Tool or Machine in Use	\$ 1,942	Struck Other Object	\$ 273
Ice or Snow	\$ 1,803	Animal or Insect	\$ 268
Contact with Poison Ivy/Oak	\$ 1,719	Other External Factors	\$ 246
Fall From Liquid or Grease	\$ 748	Allergic Reaction/Rash	\$ 169
Puncture Wound	\$ 726	Twisting	\$ 63

4. Dollar Loss for All Claims

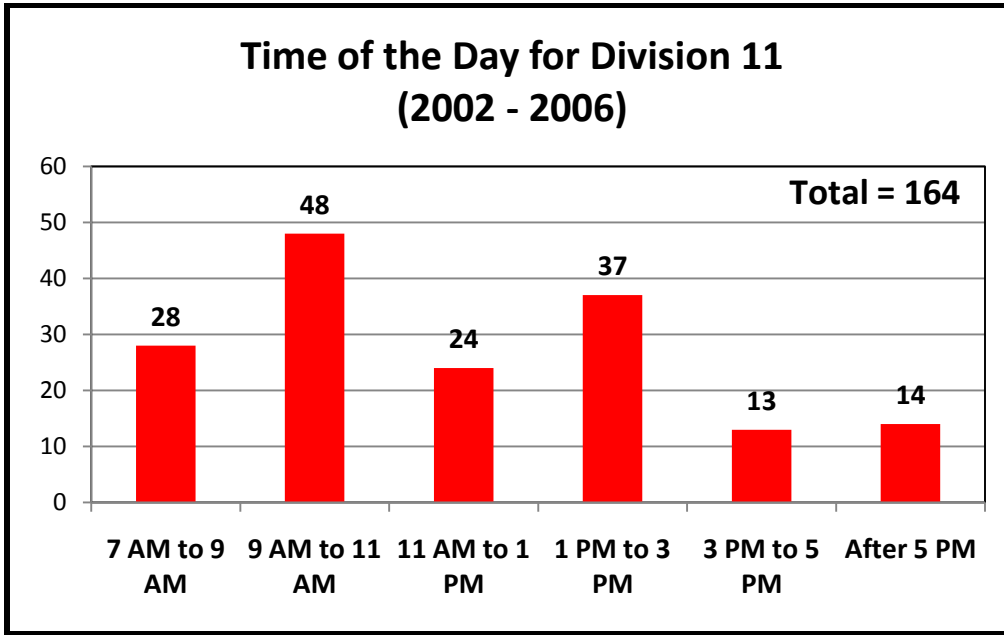
The dollar loss by all workers compensation claims signifies all claims that resulted from incidents during the study period. From 2002 to 2006, the total dollar loss by all WC claims for Division 11 was \$1.7 million. Table below summarizes each department in Division 11 with the total amount of dollar loss in descending order. Using the check date, the total dollar loss amount of \$1,716,134 is broken out by each year, as shown on the graph with a fairly strong increasing trend.

Dollar Loss by All WC Claims (2002 – 2006) Division 11 Total = \$1,716,134			
Dept.	Amount	Dept.	Amount
150428	\$ 591,221	150436	\$ 15,469
150434	\$ 213,676	150437	\$ 8,731
150435	\$ 199,438	150433	\$ 4,184
150450	\$ 98,589	150803	\$ 2,660
3117	\$ 89,610	150453	\$ 2,638
150439	\$ 85,662	150448	\$ 2,418
150438	\$ 76,422	150808	\$ 2,188
3110	\$ 69,799	150430	\$ 2,168
150444	\$ 51,283	150446	\$ 1,228
150440	\$ 47,884	3116	\$ 1,035
150442	\$ 34,782	150429	\$ 886
150431	\$ 34,330	150810	\$ 695
150432	\$ 23,913	150805	\$ 601
150447	\$ 18,553	150807	\$ 597
3118	\$ 17,560	150809	\$ 342
150451	\$ 17,392	150802	\$ 179



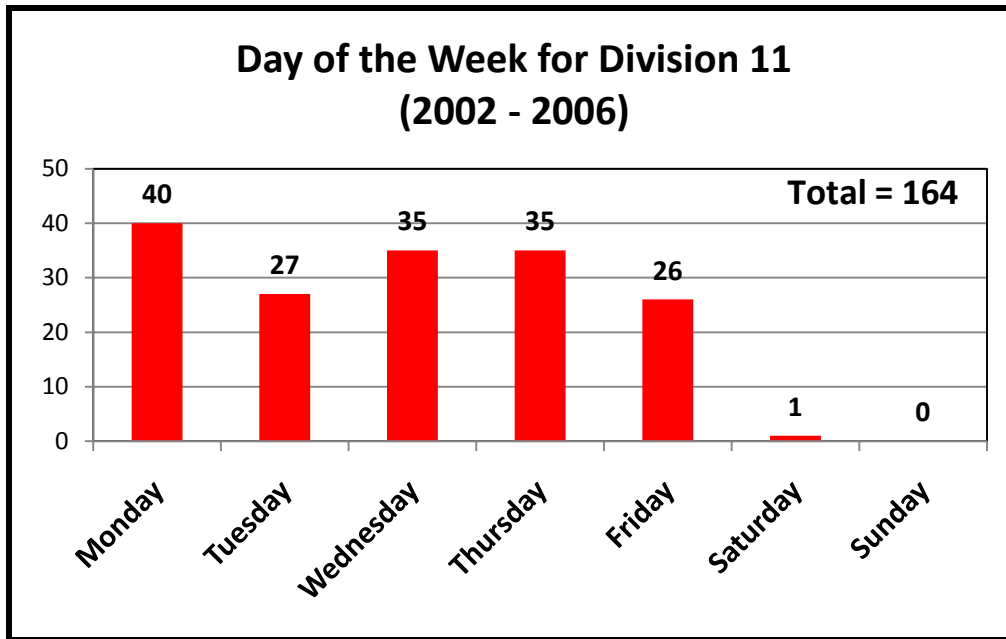
5. Time of the Day

Time of the day analysis reflects all incidents that occurred in Division 11 in six different time groups. Most incidents occurred during the morning hours between 9 AM to 11 AM with a total of 48 incidents, while 1 PM to 3 PM had second most incidents with a total of 37. There were 13 incidents that occurred between 3 PM to 5 PM.



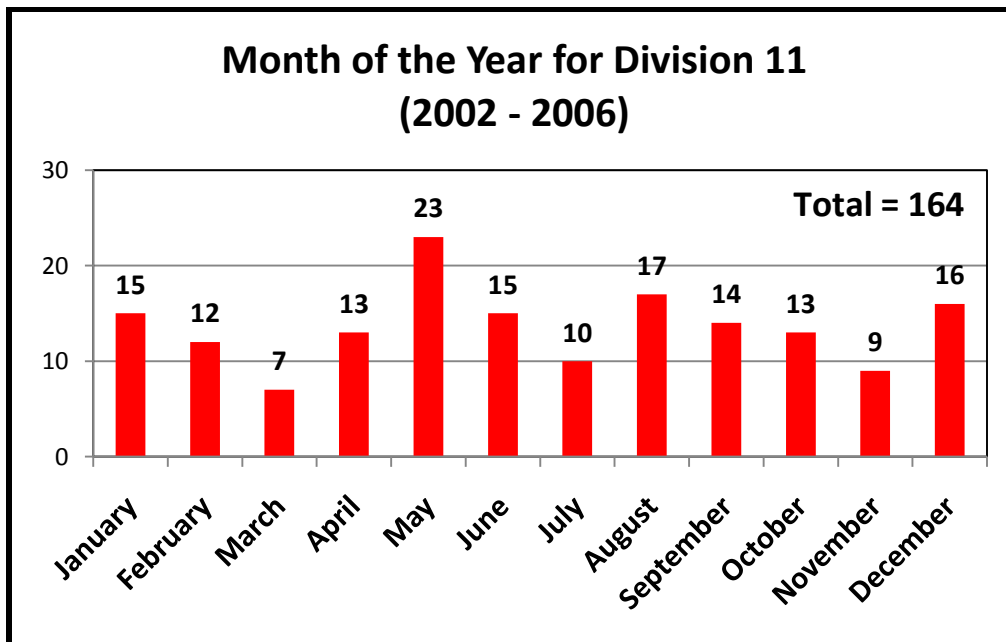
6. Day of the Week

The greatest number of incidents with a total of 40 incidents occurred on Monday, as can be seen from the graph. Wednesday and Thursday registered second and third place in the number of incidents occurrence with 35 incidents each.



7. Month of the Year

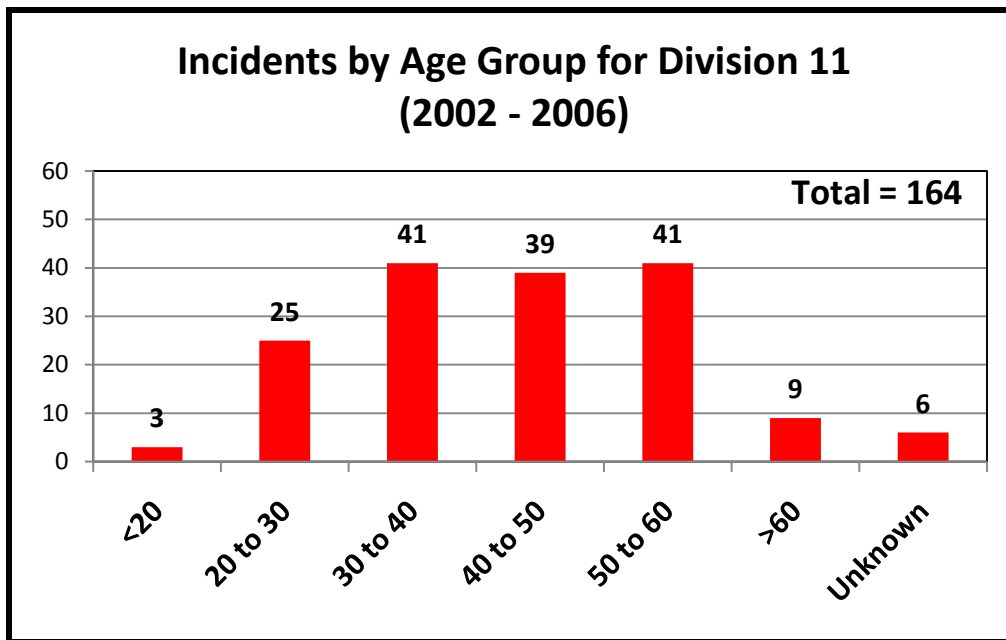
In analyzing incidents by month of the year, May recorded the most incidents with a total of 23 incidents. Second and third greatest amount were in August and December with 17 and 16, respectively. March had the least number of incidents with a total of 7.



8. Incidents by Age Group

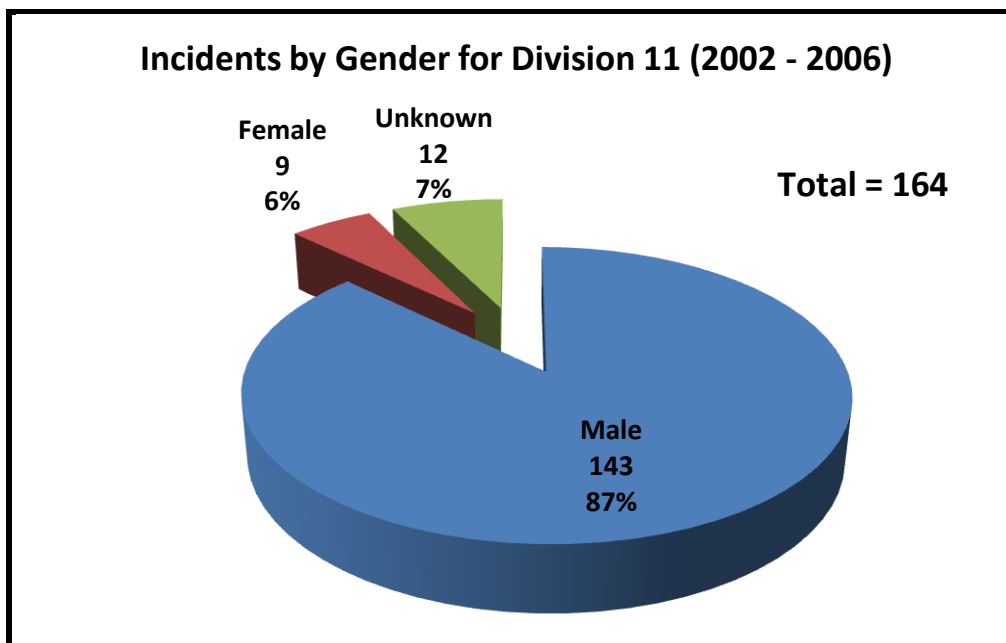
The graph below displays the incidents separated into different age groups for each division. Ages 30 to 40 years and 50 to 60 years old had the greatest amount of incidents with 41. The

second greatest number of incidents occurred in the 40 to 50 year old group with a total of 39. The least number of incidents occurred in the less than 20 years old category with 3 incidents.



9. Incidents by Gender

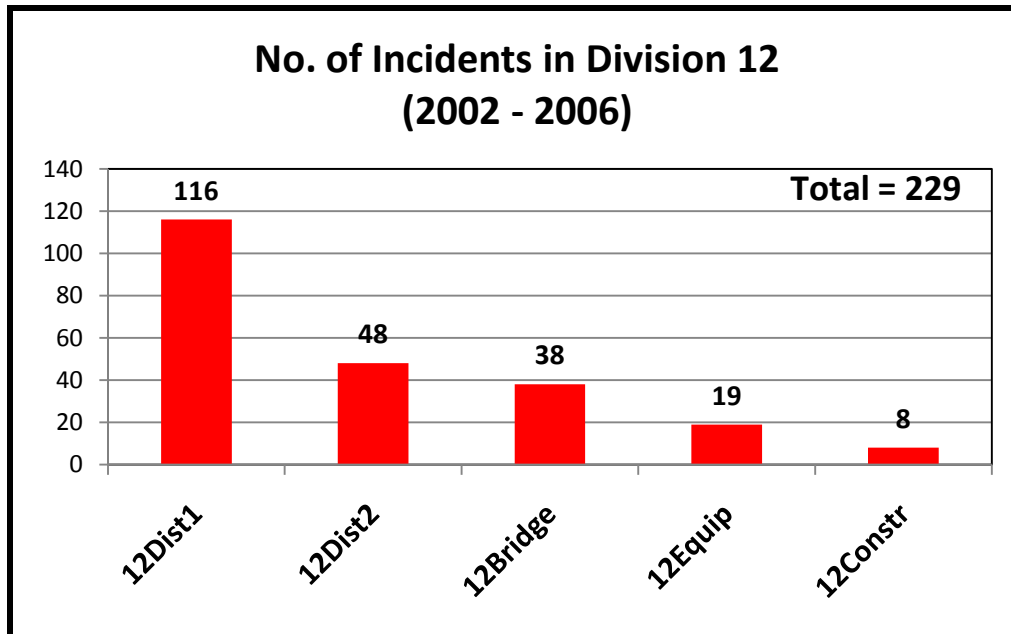
The graph below displays the gender breakdown for each division. The chart shows that 87% of men are involved in the incidents, followed by 7% in the unknown category. The remaining percentage involved females with 6%.



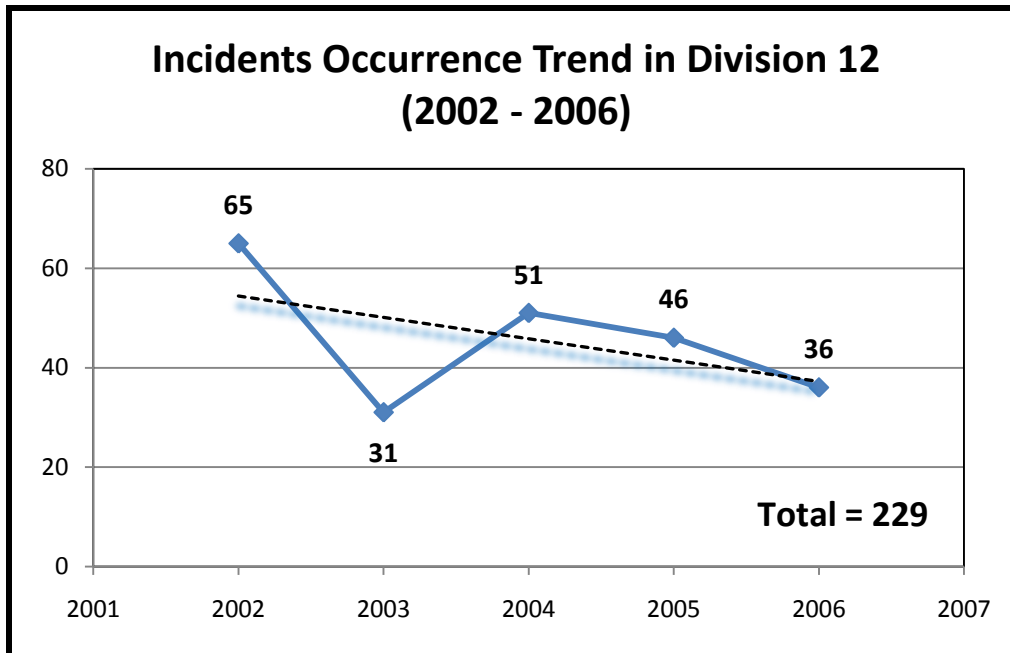
DIVISION 12

1. Number of Incidents

According to the analysis from the database, the total numbers of incidents for Division 12 from 2002-2006 in each office totaled 229 incidents. District 1 had the most incidents with 116 incidents while District 2 had 48 incidents. The Bridge office had 38 incidents and Equipment with 19 incidents. The Construction department had the least incidents with a total of 8.

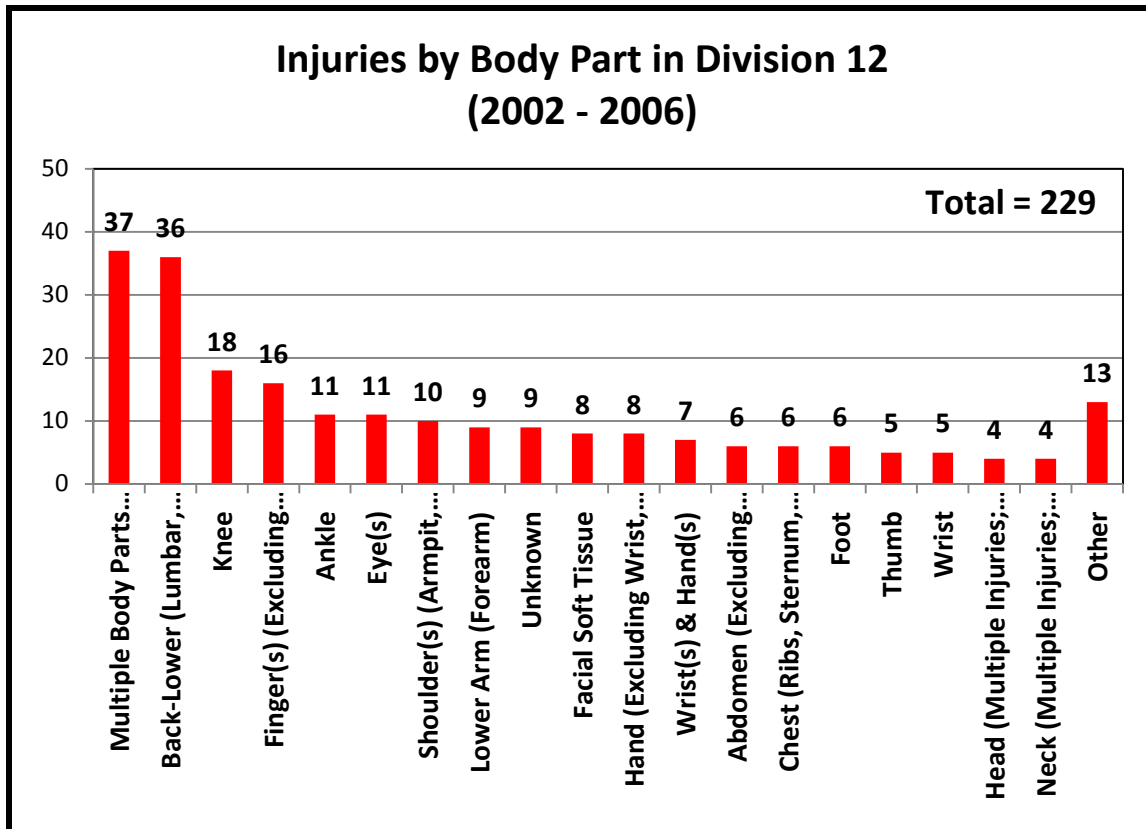


The graph below shows the number of incidents broken down into the 2002-2006 period for Division 12. The graph has an inconsistent descending trend line. It starts at 65 incidents in 2002, decreases in 2003 to 31 incidents. The graph then begins to increase in 2004 to 51 incidents. Then the graph starts its descent through 2005-2006 and ends with 36 incidents.



2. Number of Injuries by Body Part

The analysis by body part reflects the parts of the body affected during each incident in Division 12 and other offices and districts. The greatest number of injuries multiple body parts with a total count of 37 incidents, followed by lower back and knee injuries with 36 and 18, respectively. A graphic representation of the number of incidents by body part can be seen below. Table lists remaining body parts grouped as “Other.”



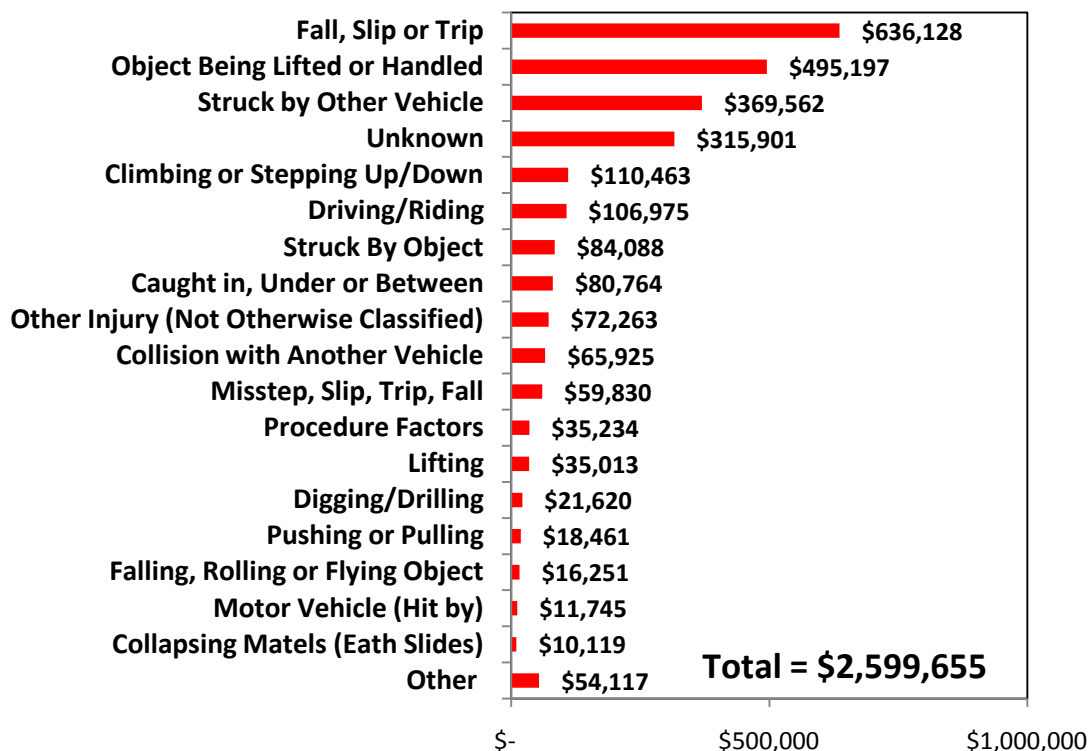
Other Body Parts

Leg Lower	Buttocks
Back-Upper (Cervical, Thoracic Area)	Pelvis
Teeth-Tooth	Toe(s)
Thigh, Upper Leg	Upper Arm (Homeruns)

3. Dollar Loss by Cause of Injuries

From the database, the following information about dollar loss by cause of incidents was analyzed and the resultant cause of expense was also picked up. In summary, of the highest and the lowest cause of expense, fall, slip, or trip accounted for \$636,128, followed by incidents that resulted objects being lifted or carried and being struck by a vehicle, which accounted for \$495,197 and \$369,562. Among the lowest cause of incidents by dollar loss were, results from being hit by a motor vehicle, and collapsing materials with \$11,745 and \$10,119, respectively. A detail graphical representation can be seen on chart below. Table below includes miscellaneous causes of injuries labeled as “Other.”

Dollar Loss by Cause in Division 12 (2002 - 2006)



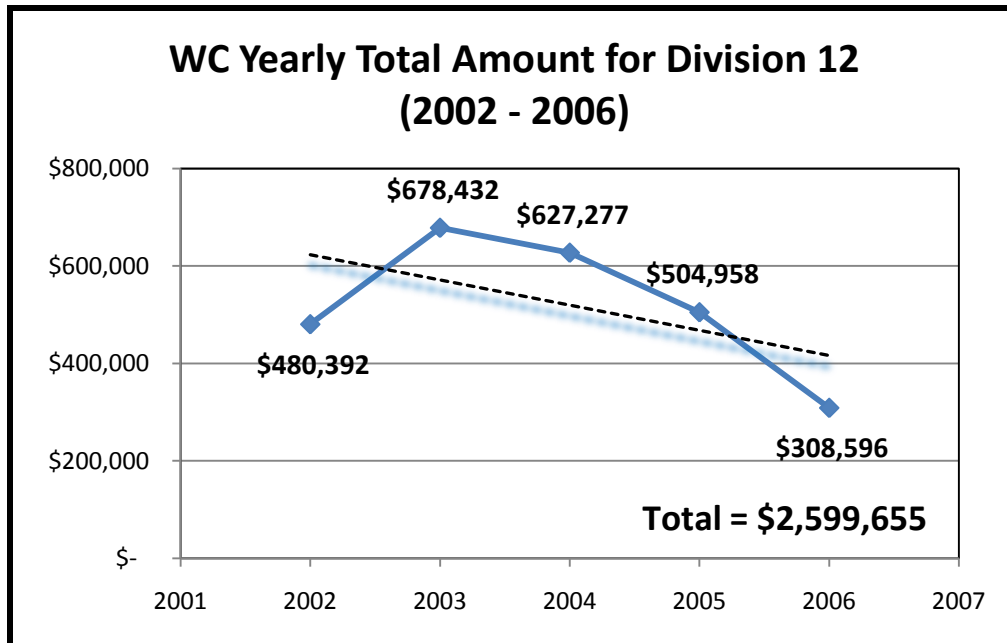
Other Causes of Injuries

Cause	Amount	Cause	Amount
Vehicle Upset (Overturned, etc.)	\$ 9,498	Overturned	\$ 751
Hand Tool or Machine in Use	\$ 7,809	Fall into Opening (Shaft, etc.)	\$ 704
Shoveling, Scraping, Sanding, Cleaning	\$ 7,050	Rear End Collision	\$ 648
Repetitive Motion	\$ 5,941	Vomit/Nausea	\$ 236
Contact with Poison Ivy/Oak	\$ 2,902	Dizzy, Fainted, Passed Out	\$ 231
Cut, Puncture, Scrape	\$ 2,781	Fall From Different Level	\$ 189
Struck Other Vehicle	\$ 2,581	Allergic Reaction/Rash	\$ 187
Foreign Body in Eye	\$ 2,400	Hit Stationary Object	\$ 151
Bending	\$ 2,338	Backing	\$ 133
Burns	\$ 1,931	Puncture Wound	\$ 120
Dust, Gases, Fumes, or Vapors	\$ 1,511	Jumping	\$ 89
Hand Tool, Utensil (Not Powered)	\$ 1,413	Machine or Machinery	\$ 60
Material Handling	\$ 1,249	Different Level (RE: A Fall)	\$ 50
Animal or Insect	\$ 1,164		

4. Dollar Loss for All Claims

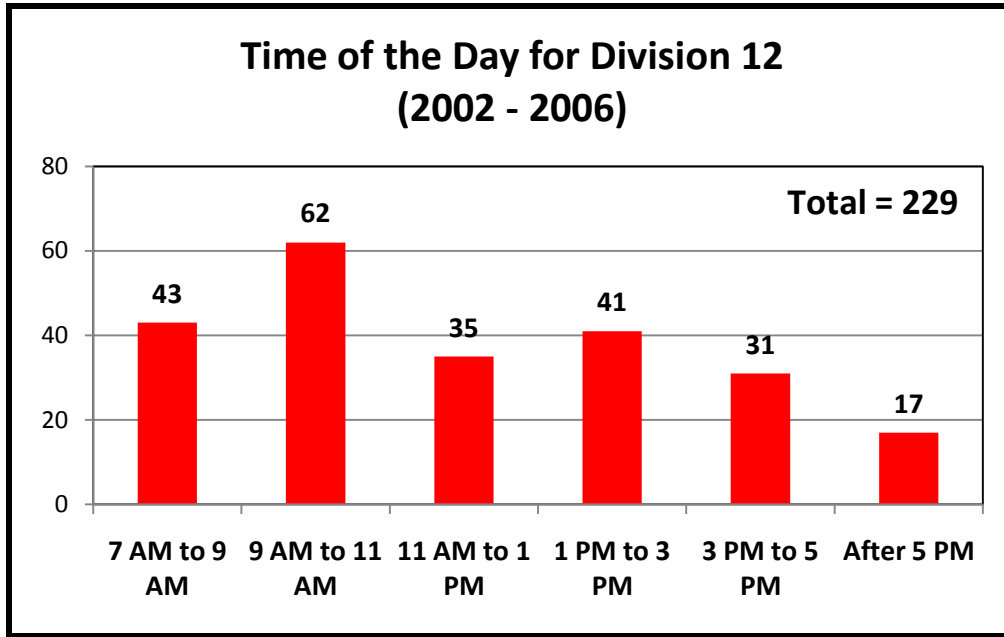
The dollar loss by all workers compensation claims signifies all claims that resulted from incidents during the study period. From 2002 to 2006, the total dollar loss by all WC claims for Division 12 was nearly \$2.6 million. Table below summarizes each department in Division 12 with the total amount of dollar loss in descending order. Using the check date, the total dollar loss amount of \$2,599,655 is broken out by each year, as shown on the graph with a strong downward trend.

Dollar Loss by All WC Claims (2002 – 2006) Division 12 Total = \$2,599,655			
Dept.	Amount	Dept.	Amount
150454	\$ 595,527	150818	\$ 20,524
150458	\$ 530,971	150455	\$ 12,262
150462	\$ 307,785	150463	\$ 11,427
150469	\$ 285,587	150471	\$ 5,695
150468	\$ 239,901	150465	\$ 2,052
150456	\$ 174,148	150459	\$ 1,066
150460	\$ 97,487	150475	\$ 493
150811	\$ 92,314	150467	\$ 396
150466	\$ 72,330	150814	\$ 373
150464	\$ 43,273	150473	\$ 251
150816	\$ 42,185	150474	\$ 97
150457	\$ 38,044	150812	\$ 89
150461	\$ 25,377		



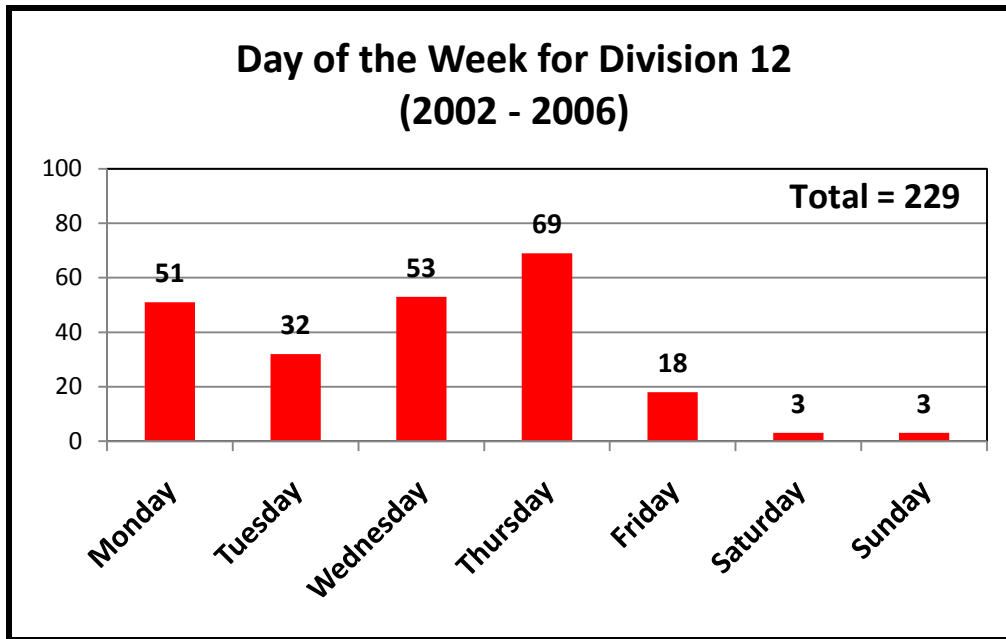
5. Time of the Day

Time of the day analysis reflects all incidents that occurred in Division 12 in six different time groups. Most incidents occurred during the morning hours between 9 AM to 11 AM with a total of 62 incidents, while 7 AM to 9 AM had second most incidents with a total of 43. There were 17 incidents that occurred after 5:00 PM.



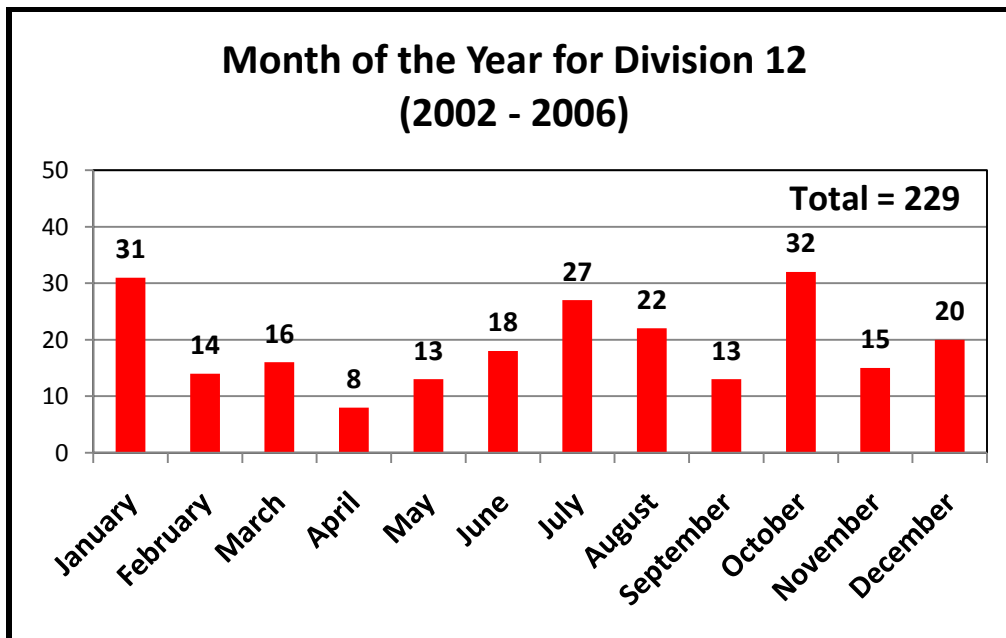
6. Day of the Week

The greatest number of incidents with a total of 69 incidents occurred on Thursday, as can be seen from the graph. Wednesday and Monday registered second and third place in the number of incidents occurrence with 53 and 51, respectively.



7. Month of the year

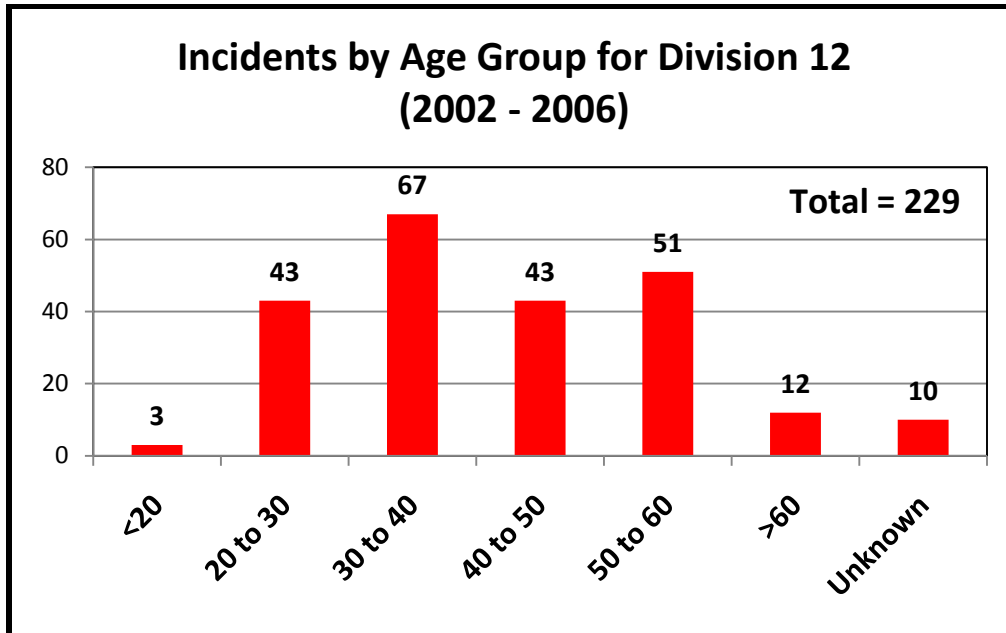
In analyzing incidents by month of the year, October recorded the most incidents with a total of 32 incidents. Second and third greatest amounts were January and July with 31 and 27, respectively. April had the least number of incidents with a total of 8.



8. Incidents by Age Group

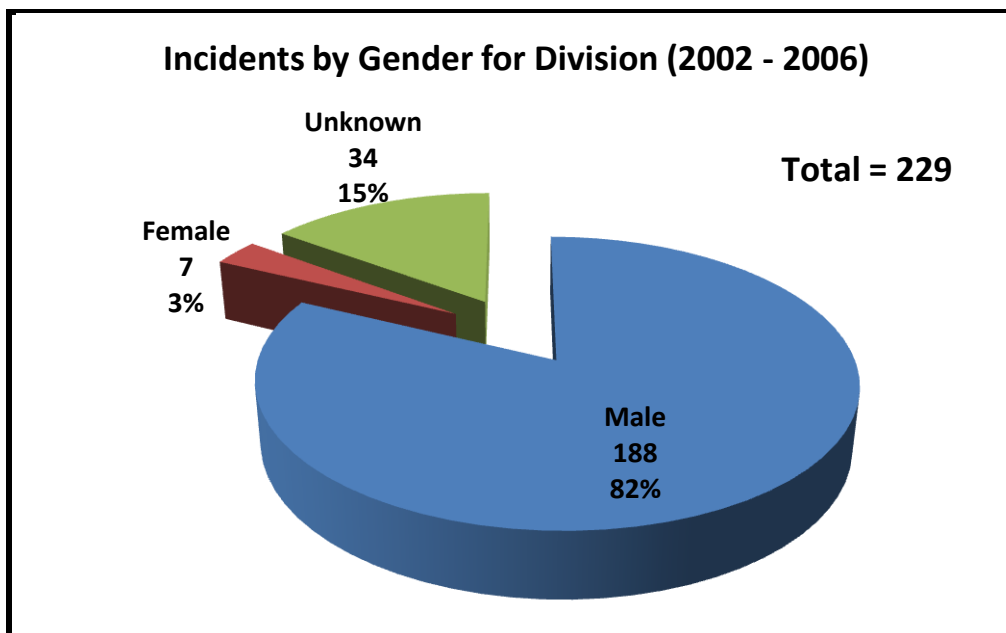
The graph below displays the incidents separated into different age groups for each division. Ages 30 to 40 years had the greatest amounts of incidents with 67. The second greatest

number of incidents occurred in the 50 to 60 year old group with a total of 51. The least number of incidents occurred in the less than 20 years old category with 3 incidents.



9. Incidents by Gender

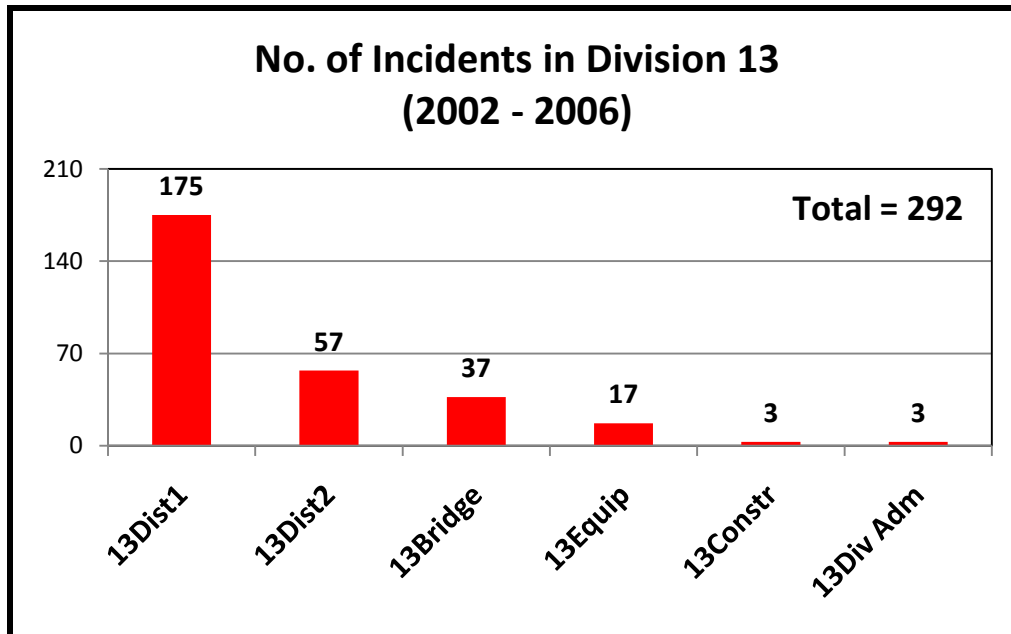
The graph below displays the gender breakdown for each division. The chart shows that 82% of men are involved in the incidents, followed by 15% in the unknown category. The remaining percentage involved females with 3%.



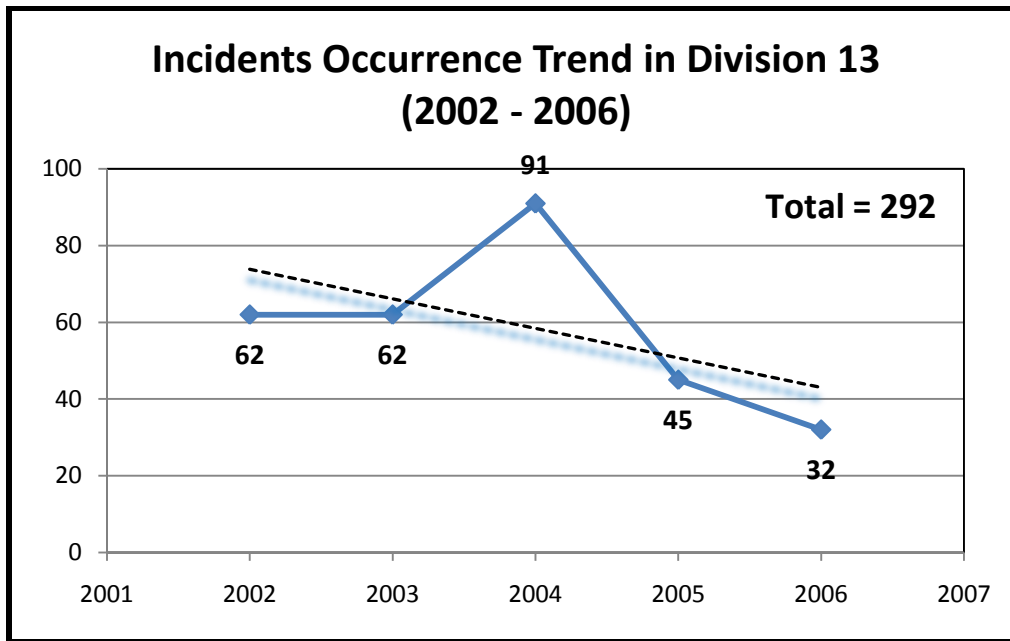
Division 13

1. Number of Incidents

According to the analysis from the database, the total numbers of incidents for Division 13 from 2002-2006 in each office totaled 292 incidents. District 1 had the most incidents with 175 incidents, while District 2 had 57 incidents. The Bridge office had 37 incidents and Equipment with 17 incidents. The Construction and Administrative office had a total of 3 incidents.

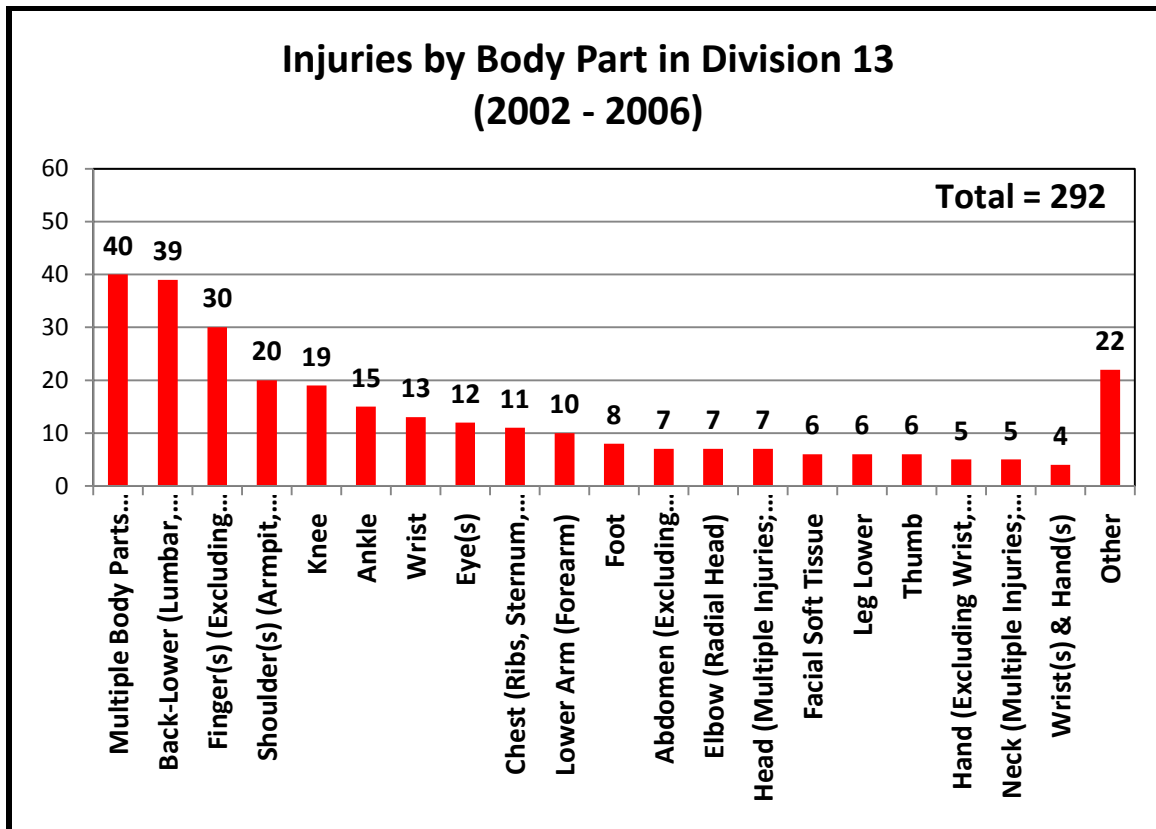


The graph below shows the number of incidents broken down into the 2002-2006 period for Division 13. The graph seems to have strongly descending trend line. It starts at 62 incidents in 2002, increases to 91 incidents in 2004. It drops back down to 45 then to 32 incidents, respectively, during 2005-2006.



2. Number of Injuries by Body Part

The analysis by body part reflects the parts of the body affected during each incident in Division 13 and other offices and districts. The greatest number of injuries affected multiple body parts with a total count of 40 incidents; followed by lower back and finger injuries with 39 and 30, respectively. A graphical representation of the number of incidents by body part can be seen below. Table lists remaining body parts grouped as “Other.”



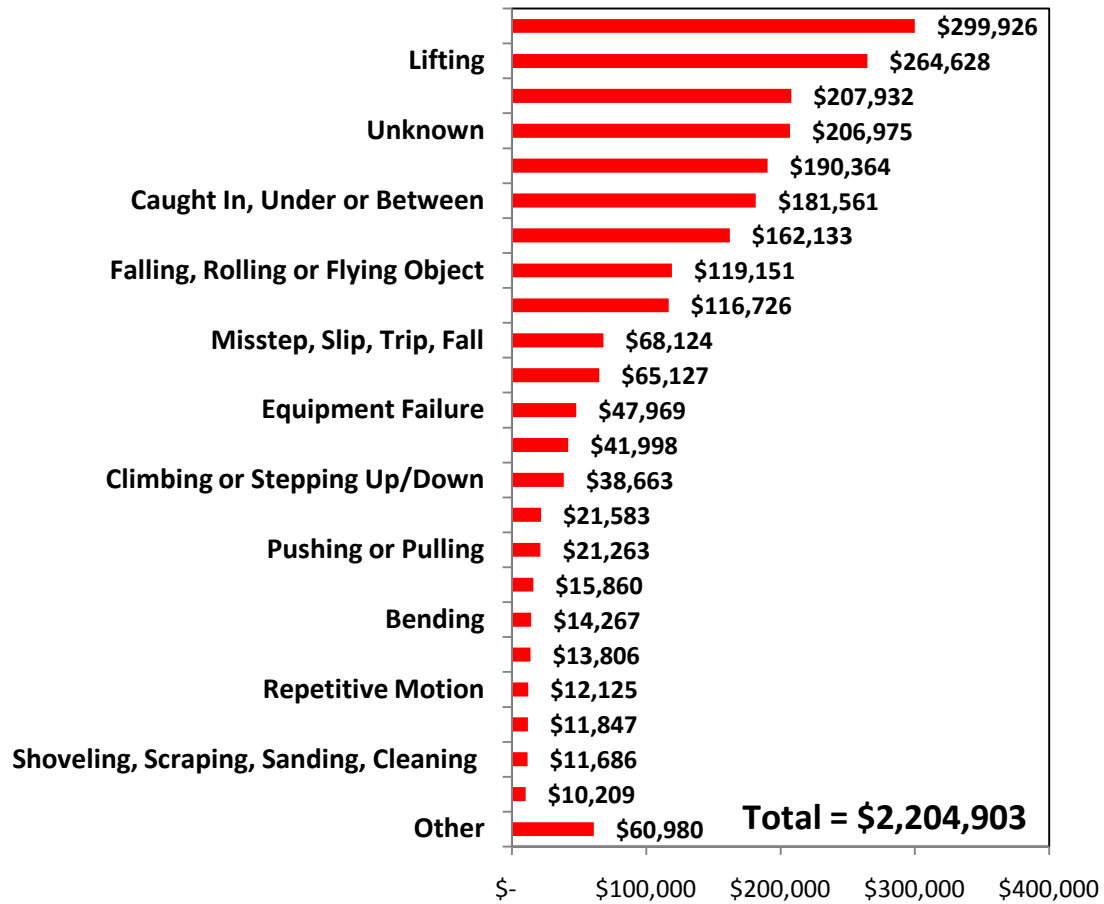
Other Body Parts

Ear(s) (Eardrum)	Hip
Facial Bones	Lungs
Nose (Includes Nasal Passage, Sense of Smell)	Mouth (Lips, Tongue, Throat, Taste)
Back-Upper (Cervical, Thoracic Area)	Pelvis
Teeth-Tooth	Unknown
Thigh, Upper Leg	Upper Arm (Humerus)
Buttocks	Lower Extremities (Legs, Multiple Inj. To Comb. Part)

3. Dollar Loss by Cause of Injuries

From the database, the following information about dollar loss by cause of incidents was analyzed and the resultant cause of expense was also picked up. In summary, of the highest and the lowest cause of expense, fall, slip, or trip accounted for \$299,926, followed by incidents that resulted from an objects being lifted/carried or being run off the road, which accounted for \$264,628 and \$207,932. Among the lowest cause of incidents by dollar loss were, results from shoveling, scraping, sanding, or cleaning, and cut, puncture, or scrape with \$11,686 and \$10,209, respectively. A detail graphical representation can be seen on chart below. Table below includes miscellaneous causes of injuries labeled as “Other.”

Dollar Loss by Cause in Division 13 (2002 - 2006)



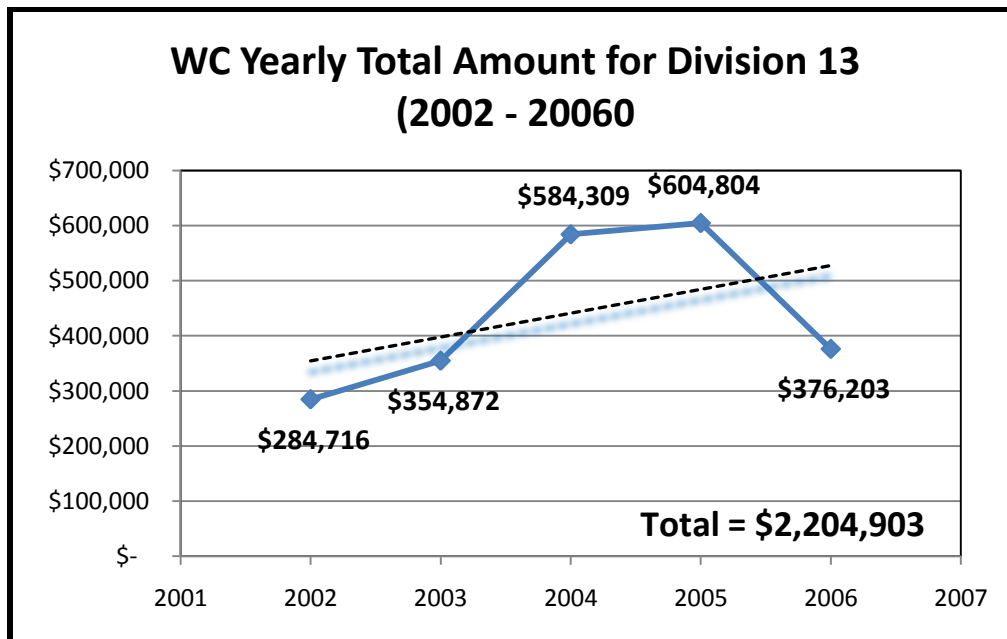
Other Causes of Injuries

Cause	Amount	Cause	Amount
Fall From Different Level	\$ 7,328	Dizzy, Fainted, Passed Out	\$ 1,962
Backing	\$ 6,515	Overtaken	\$ 1,902
Hit Stationary Object	\$ 6,422	Machine or Machinery	\$ 1,824
Contact with Blood Borne Pathogens	\$ 5,096	Other Injury (Not Otherwise Classified)	\$ 495
Procedure Factors	\$ 4,582	Puncture Wound	\$ 407
Contact with Electrical Current	\$ 3,738	Broken Glass	\$ 391
Animal or Insect	\$ 3,663	Dust, Gases, Fumes, or Vapors	\$ 327
Contact with Poison Ivy/Oak	\$ 3,349	Motor Vehicle (Hit by)	\$ 266
Hand Tool or Machine in Use	\$ 2,447	Reaching	\$ 235
Foreign Body in Eye	\$ 2,411	Vehicle Upset (Overturned, etc.)	\$ 234
Not Applicable	\$ 2,358	Burns	\$ 221
Struck By Other Vehicle	\$ 2,279	Allergic Reaction/Rash	\$ 189
Lay/Pour/Spray/cleaning	\$ 2,275	Heat Exhaustion	\$ 67

4. Dollar Loss for All Claims

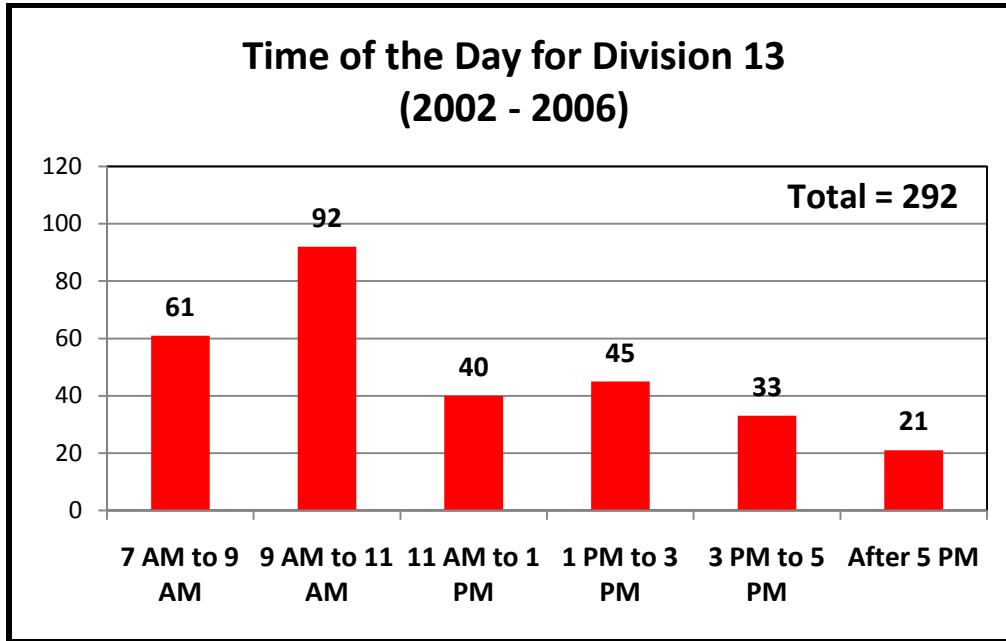
The dollar loss by all workers compensation claims signifies all claims that resulted from incidents during the study period. From 2002 to 2006, the total dollar loss by all WC claims for Division 13 was \$2.2 million. Table below summarizes each department in Division 13 with the total amount of dollar loss in descending order. Using the check date, the total dollar loss amount of \$2,204,903 is broken out by each year, as shown on the graph with a slightly ascending trend.

Dollar Loss by All WC Claims (2002 – 2006) Division 13 Total = \$2,204,903			
Dept.	Amount	Dept.	Amount
3131	\$ 533,892	150488	\$ 7,865
150481	\$ 293,263	150497	\$ 7,460
150478	\$ 245,157	150822	\$ 6,345
150477	\$ 210,768	150495	\$ 5,330
150485	\$ 173,720	150487	\$ 5,196
150492	\$ 166,946	150825	\$ 5,096
150493	\$ 141,713	150823	\$ 4,295
150480	\$ 126,637	150489	\$ 1,781
150483	\$ 70,187	150499	\$ 1,757
150482	\$ 61,538	150820	\$ 1,608
150819	\$ 47,610	150476	\$ 1,428
150494	\$ 37,390	150484	\$ 1,036
150486	\$ 23,338	150479	\$ 895
150111	\$ 11,921	150490	\$ 842
150113	\$ 9,282	150496	\$ 610



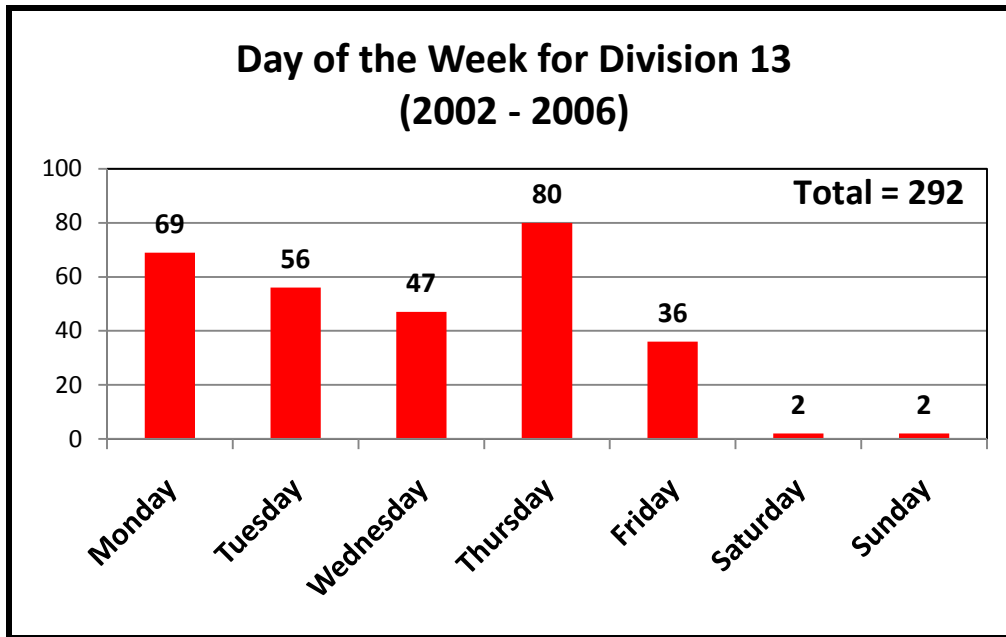
5. Time of the Day

Time of the day analysis reflects all incidents that occurred in Division 13 in six different time groups. Most incidents occurred during the morning hours between 9 AM to 11 AM with a total of 92 incidents, while 7 AM to 9 AM had second most incidents with a total of 61 incidents. There were 21 incidents that occurred after 5 PM.



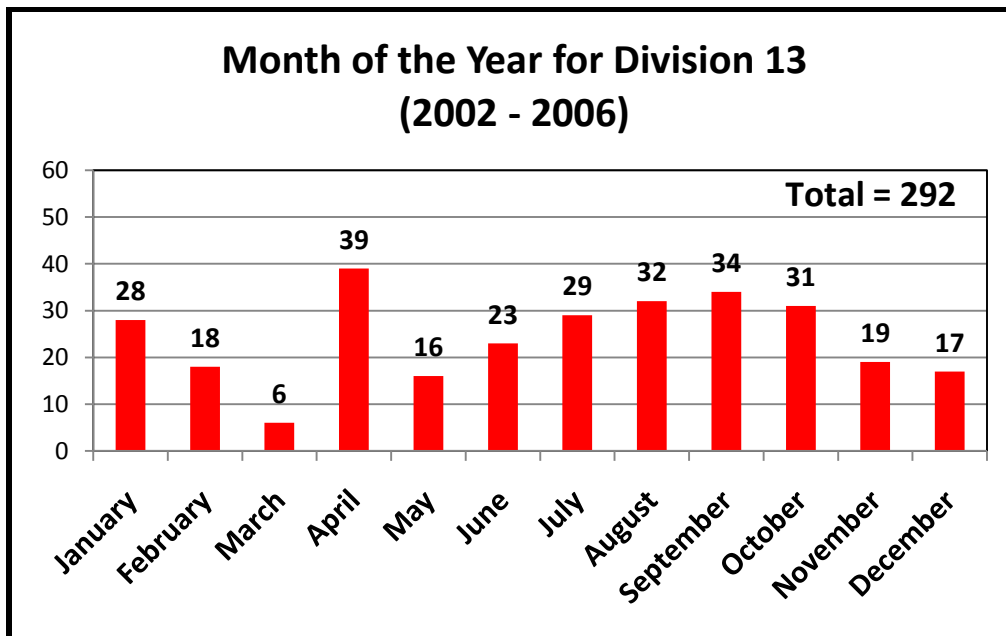
6. Day of the Week

The greatest number of incidents with a total of 80 incidents occurred on Thursday, as can be seen from the graph. Monday and Tuesday registered second and third place in the number of incidents occurrence with 69 and 56, respectively.



7. Month of the Year

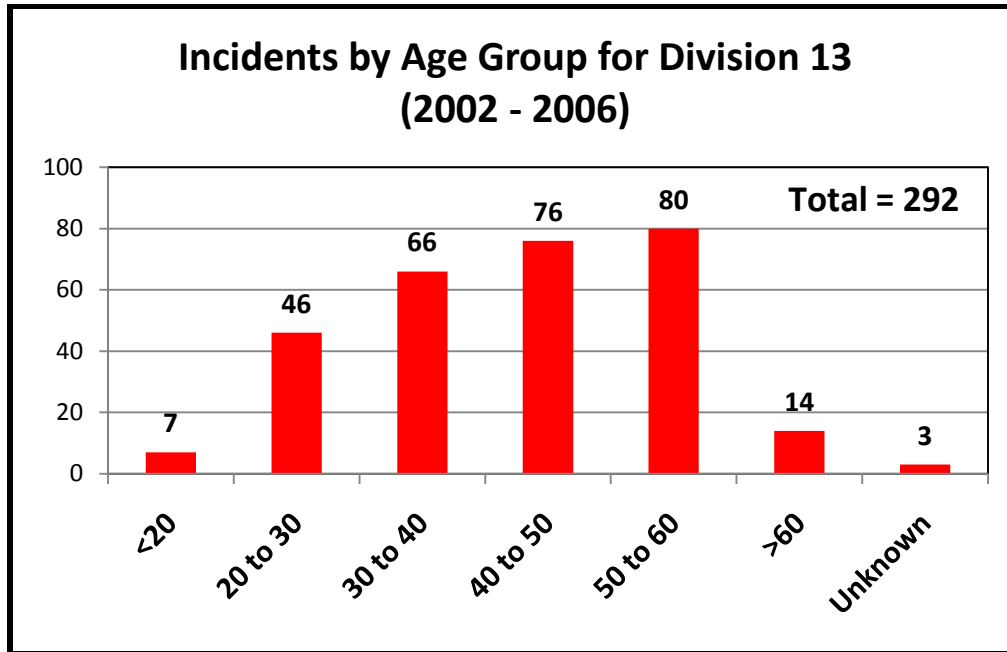
In analyzing incidents by month of the year, April recorded the most incidents with a total of 39 incidents. Second and third greatest amounts were in September and August with 34 and 32, respectively. March had the least number of incidents with a total of 6.



8. Incidents by Age Group

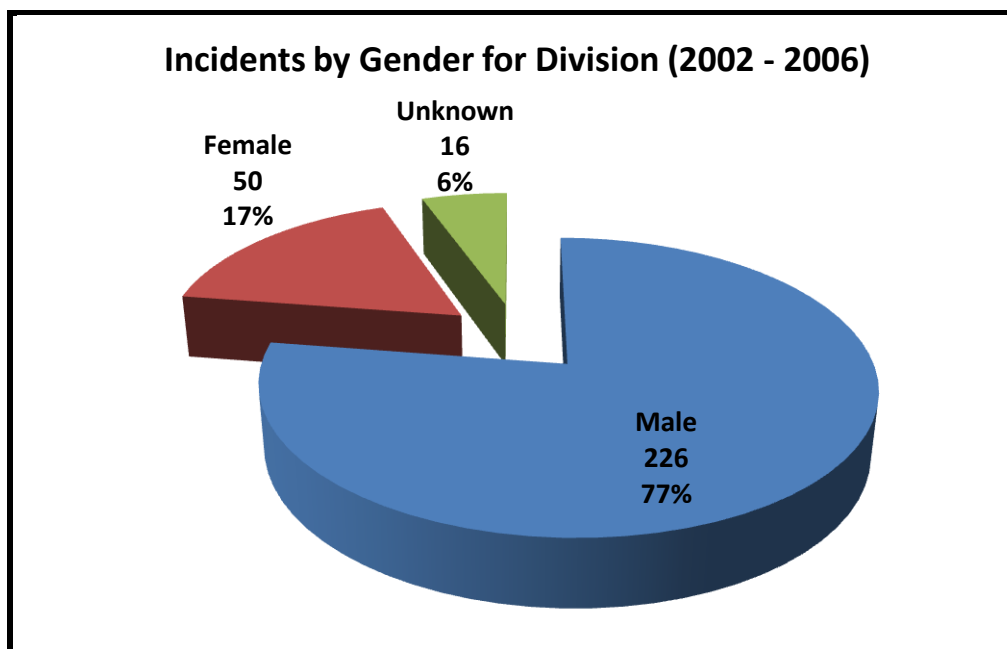
The graph below displays the incidents separated into different age groups for each division. Ages 50 to 60 years had the greatest amount of incidents with 80. The second greatest

number of incidents occurred in the 40 to 50 year old group with a total of 76. The least number of incidents occurred in the unknown category with 3 incidents.



9. Incidents by Gender

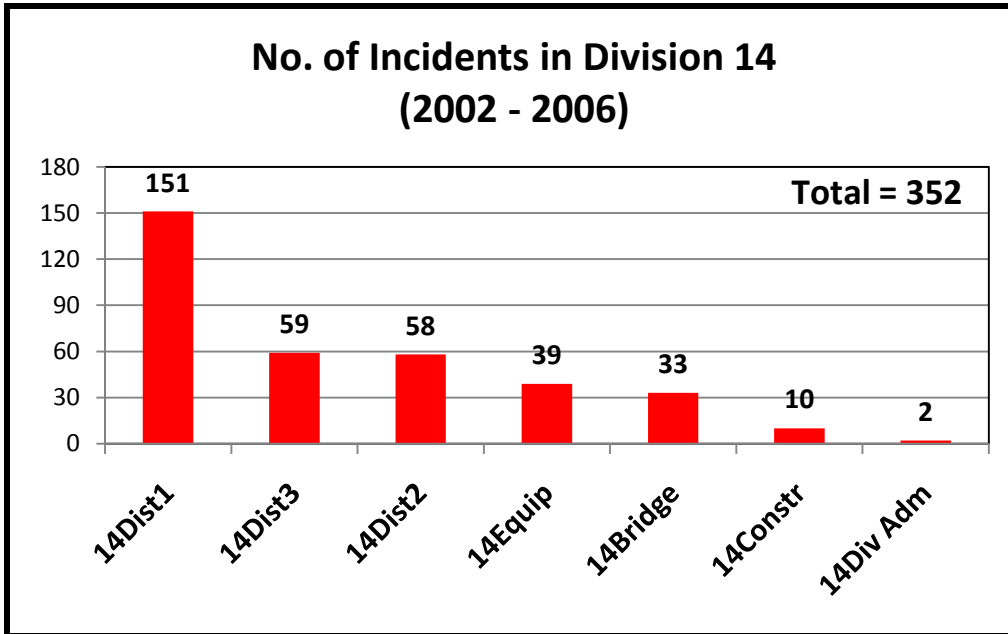
The graph below displays the gender breakdown for each division. The chart shows that 77% of men are involved in the incidents, followed by 17% involving females. The remaining percentage is in the unknown category with 6%.



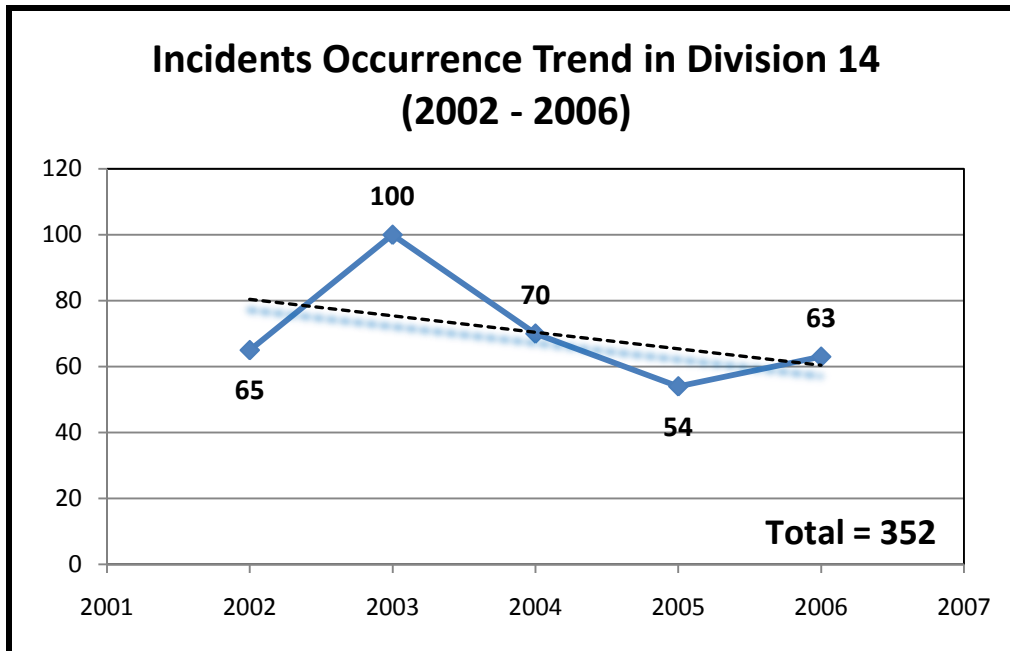
DIVISION 14

1. Number of Incidents

According to the analysis from the database, the total numbers of incidents for Division 14 from 2002-2006 in each office totaled 352 incidents. District 1 had the most incidents with 151 incidents, while District 3 and 2 had 59 incidents and 58 incidents, respectively. The Equipment office had a total 39 incidents, Bridge with 33, and Construction with 10 incidents. The Administration department had the least incidents with only 2.

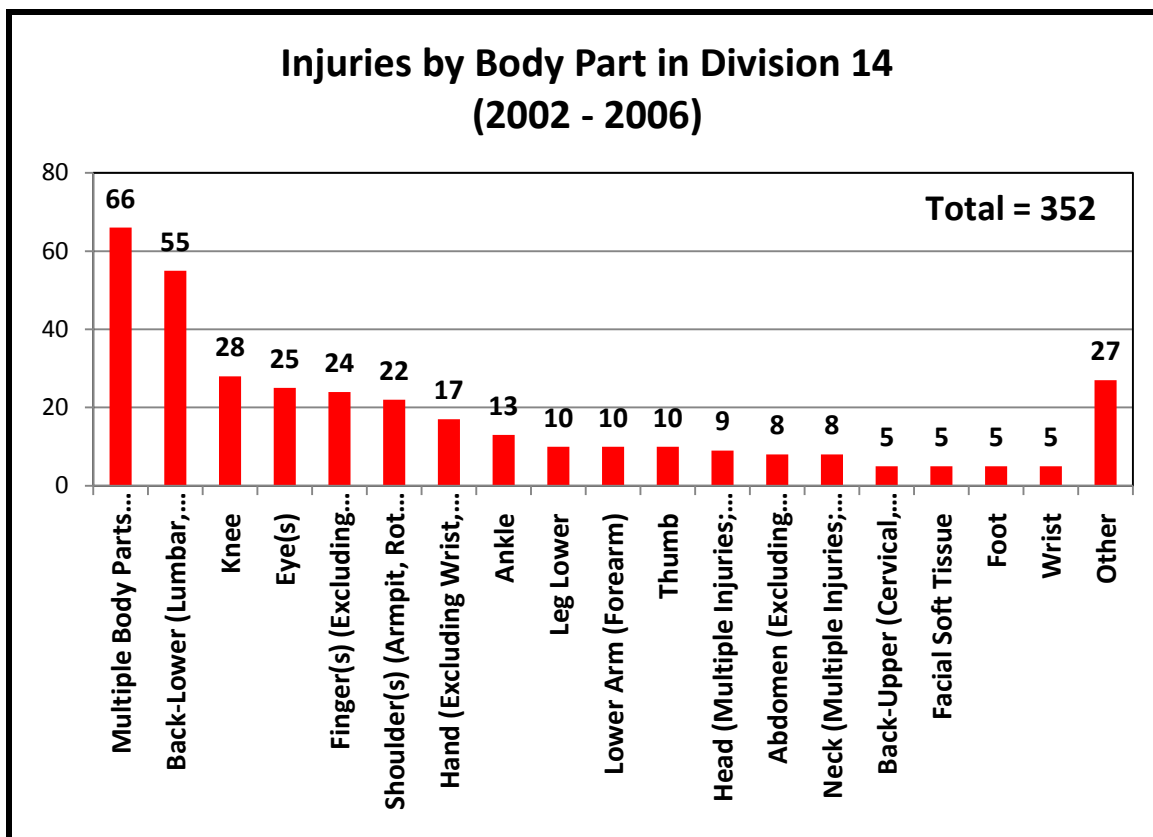


The graph below shows the number of incidents broken down into the 2002-2006 period for Division 14. The graph has a slightly declining trend line. It starts with 65 incidents in 2002, increases to 100 incidents in 2003. It starts to descend in 2004-2005 ending with 54 incidents in 2005. It then slightly increases to 63 incidents in 2006.



2. Number of Injuries by Body Part

The analysis by body part reflects the parts of the body affected during each incident in Division 14 and other offices and districts. The greatest number of injuries affected multiple body parts with a total count of 66 incidents, followed by lower back and knees with 55 and 28, respectively. A graphic representation of the number of incidents by body part can be seen below. Table lists remaining body parts grouped as “Other.”



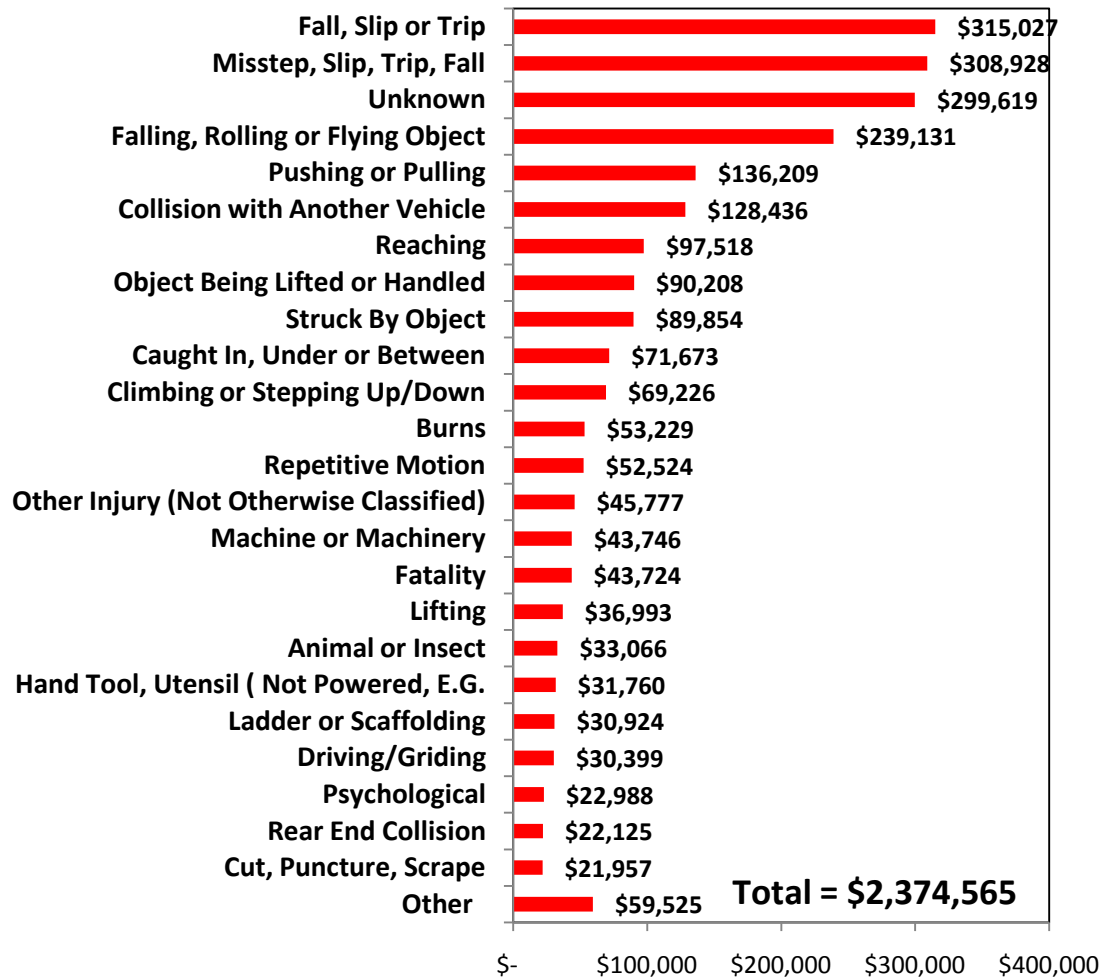
Other Body Parts

Body Part	Body Part
Chest (Ribs, Sternum, Soft Tissue)	Wrist(s) & Hand(s)
Thigh, Upper Leg	Mouth (Lips, Tongue, Throat, Taste)
Ear(s) (Eardrum)	No Physical Injury (Mental Disorder)
Lower Extremities (Legs, Multiple Inj. To Comb. Part)	Teeth-Tooth
Elbow (Radial Head)	Toe (GREAT)
Hip	Toe(s)
Unknown	

3. Dollar Loss by Cause of Injuries

From the database, the following information about dollar loss by cause of incidents was analyzed and the resultant cause of expense was also picked up. In summary, of the highest and the lowest cause of expense, fall, slip, or a trip accounted for \$315,027, followed by incidents that resulted from a misstep, slip, trip, or fall and from unknown causes, which accounted for \$308,928 and \$299,619. Among the lowest cause of incidents by dollar loss were, results from being in a rear end collision, and cut, puncture, or scrape with \$22,125 and \$21,957, respectively. A detail graphical representation can be seen on chart below. Table below includes miscellaneous causes of injuries labeled as “Other.”

Dollar Loss by Cause in Division 14 (2002 - 2006)



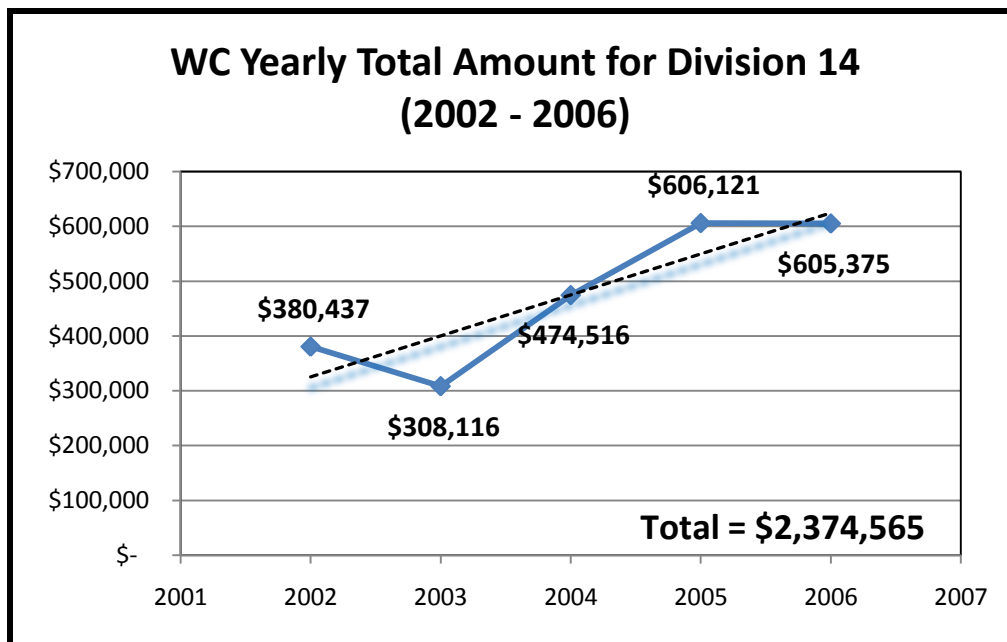
Other Causes of Injuries

Cause	Amount	Cause	Amount
Foreign Body in Eye	\$ 8,846	Shoveling, Scraping, Sanding, Cleaning	\$ 619
Fall From Ladder or Scaffold	\$ 6,717	Overtured	\$ 484
Hand Tool or Machine in Use	\$ 6,375	Motor Vehicle (Hit by)	\$ 392
Bending	\$ 6,301	Struck By Other Vehicle	\$ 389
Collision with Fixed Object	\$ 5,613	Turning	\$ 371
Collapsing Matels (Eath Slides)	\$ 4,162	Ice or Snow	\$ 259
Contact with Poison Ivy/Oak	\$ 3,538	Overtured or Thrown from Machinery	\$ 244
Fall From Different Level	\$ 2,801	Dust, Gases, Fumes, or Vapors	\$ 127
Moving, Stepping aside, Turning	\$ 2,233	Heating Apparatus	\$ 89
Twisting	\$ 2,103	Tire Failure	\$ 87
Struck Other Vehicle	\$ 1,554	Vehicle Upset (Overtured, etc.)	\$ 63
Walking	\$ 1,459	Same Level (re: A Fall)	\$ 45
Lay/Pour/Spray/cleaning	\$ 1,226	Powered Hand Tool, Appliance	\$ 36
Broken Mirrors	\$ 942	Different Level (RE: A Fall)	\$ 29
Ran Off Road	\$ 941	Fall Into Opening (Shaft, etc.)	\$ 20
Struck Other Object	\$ 818	Heat Exhaustion	\$ 14
Hit Stationary Object	\$ 622	Other External Factors	\$ 6

4. Dollar Loss for All Claims

The dollar loss by all workers compensation claims signifies all claims that resulted from incidents during the study period. From 2002 to 2006, the total dollar loss by all WC claims for Division 14 was \$2.3 million. Table below summarizes each department in Division 14 with the total amount of dollar loss in descending order. Using the check date, the total dollar loss amount of \$2,374,565 is broken out by each year, as shown on the graph with strong upward trend.

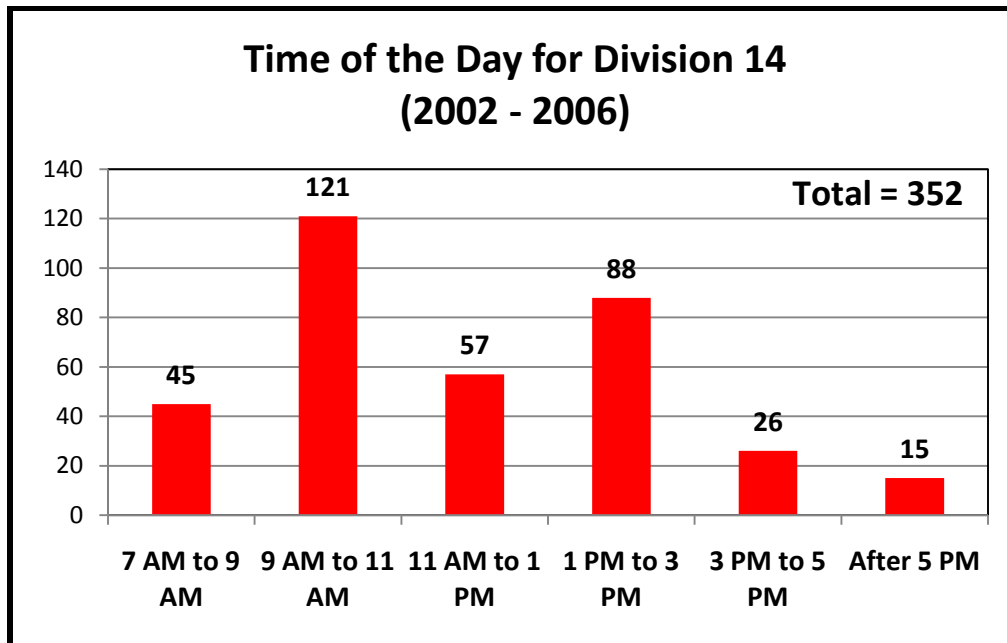
Dollar Loss by All WC Claims (2002 – 2006) Division 14 Total = \$2,374,565			
Dept.	Amount	Dept.	Amount
150513	\$ 310,879	150832	\$ 28,391
150522	\$ 216,042	150518	\$ 22,881
150500	\$ 200,704	150527	\$ 21,626
150509	\$ 155,562	150937	\$ 18,724
150501	\$ 151,219	150829	\$ 16,278
150512	\$ 149,862	150938	\$ 12,059
150520	\$ 144,093	150511	\$ 7,856
150508	\$ 127,355	150519	\$ 6,177
150827	\$ 116,709	150117	\$ 2,466
150503	\$ 107,580	150507	\$ 1,655
150517	\$ 102,052	150828	\$ 1,193
150521	\$ 74,575	150526	\$ 1,121
150502	\$ 69,682	150515	\$ 1,009
3143	\$ 65,841	3414	\$ 912
150505	\$ 60,630	150939	\$ 865
150114	\$ 59,559	150516	\$ 726
150504	\$ 49,862	150514	\$ 513
150510	\$ 35,166	150833	\$ 228
150506	\$ 32,478	150525	\$ 38



5. Time of the Day

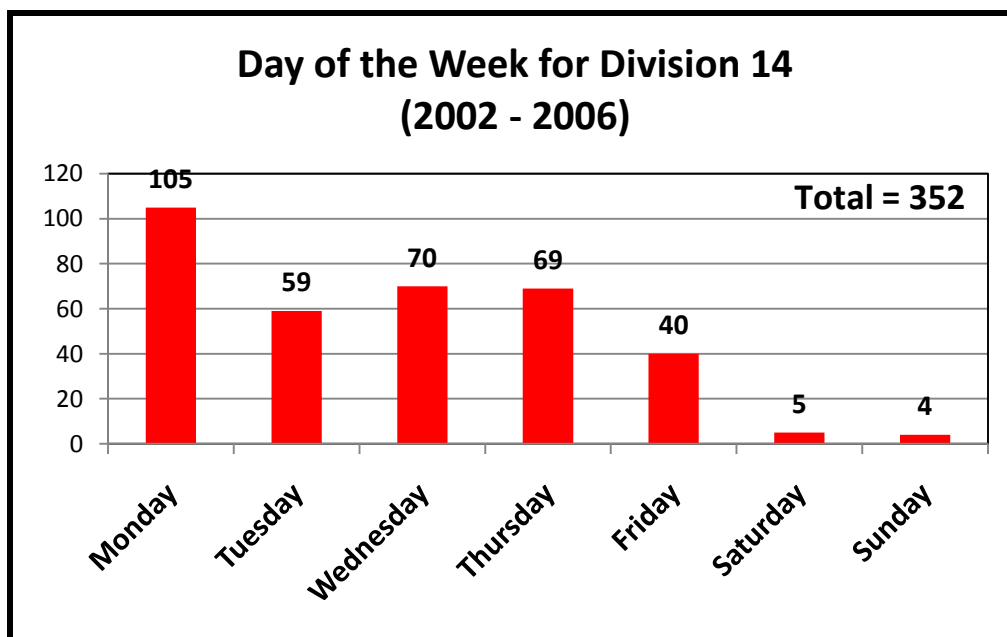
Time of the day analysis reflects all incidents that occurred in Division 14 in six different time groups. Most incidents occurred during the morning hours between 9 AM to 11 AM with a

total of 121 incidents, while 1 PM to 3 PM had second most incidents with a total of 88. There were 15 incidents that occurred after 5 PM.



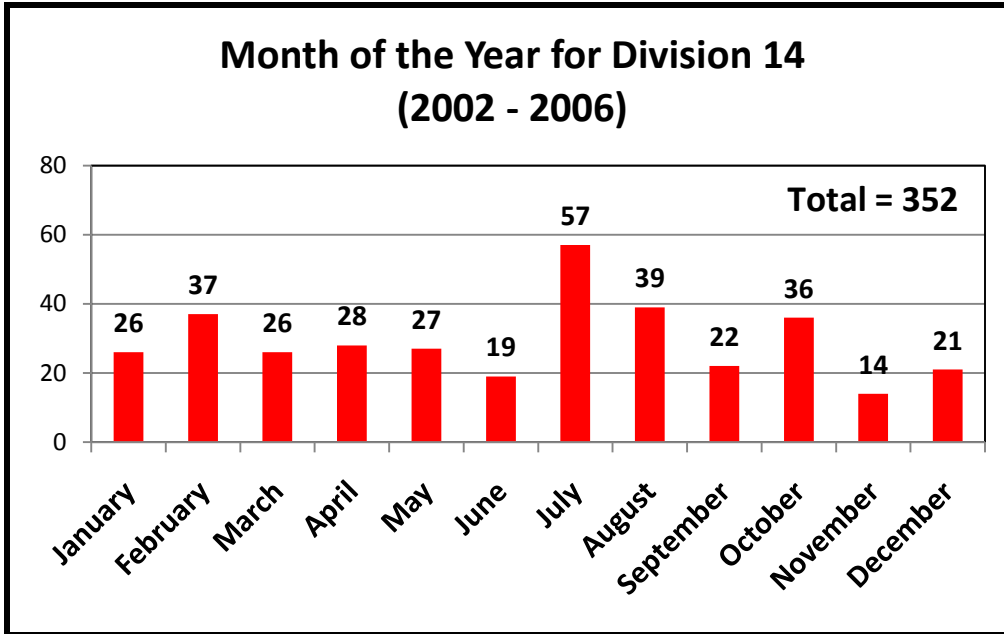
6. Day of the Week

The greatest number of incidents with a total of 105 incidents occurred on Monday, as can be seen from the graph. Wednesday and Thursday registered second and third place in the number of incidents occurrence with 70 and 69, respectively.



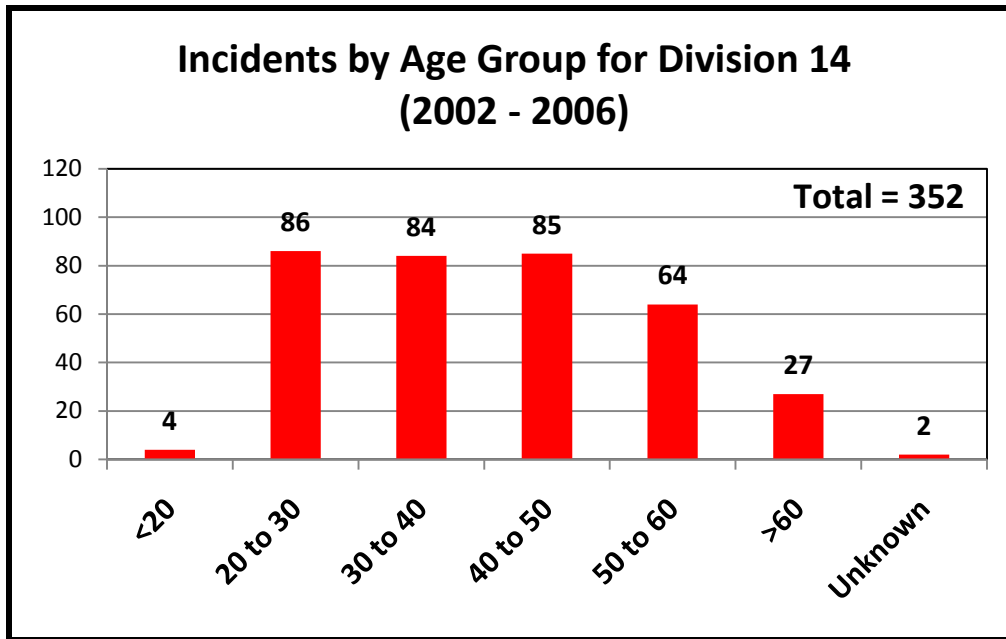
7. Month of the Year

In analyzing incidents by month of the year, July recorded the most incidents with a total of 57 incidents. Second and third greatest amounts were in August and February with 39 and 37, respectively. November had the least number of incidents with a total of 14.



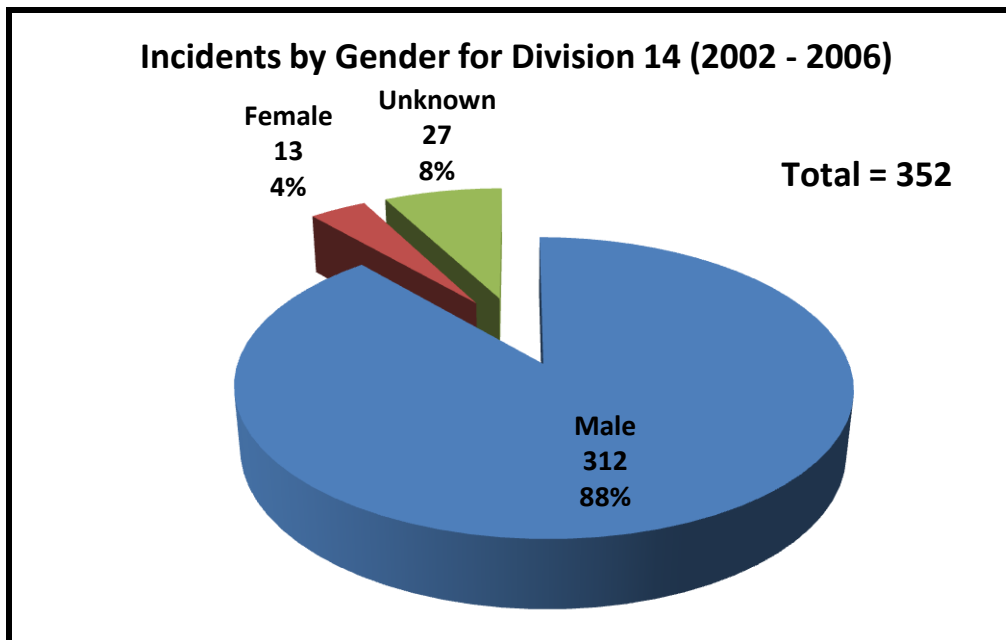
8. Incidents by Age Group

The graph below displays the incidents separated into different age groups for each division. Ages 20 to 30 years had the greatest amount of incidents with 86. The second greatest number of incidents occurred in the 40 to 50 year old group with a total of 85. The least number of incidents occurred in the unknown category with 2 incidents.



9. Incidents by Gender

The graph below displays the gender breakdown for each division. The chart shows that 88% of men are involved in the incidents, followed by 8% in the unknown category. The remaining percentage involved females with 4%.



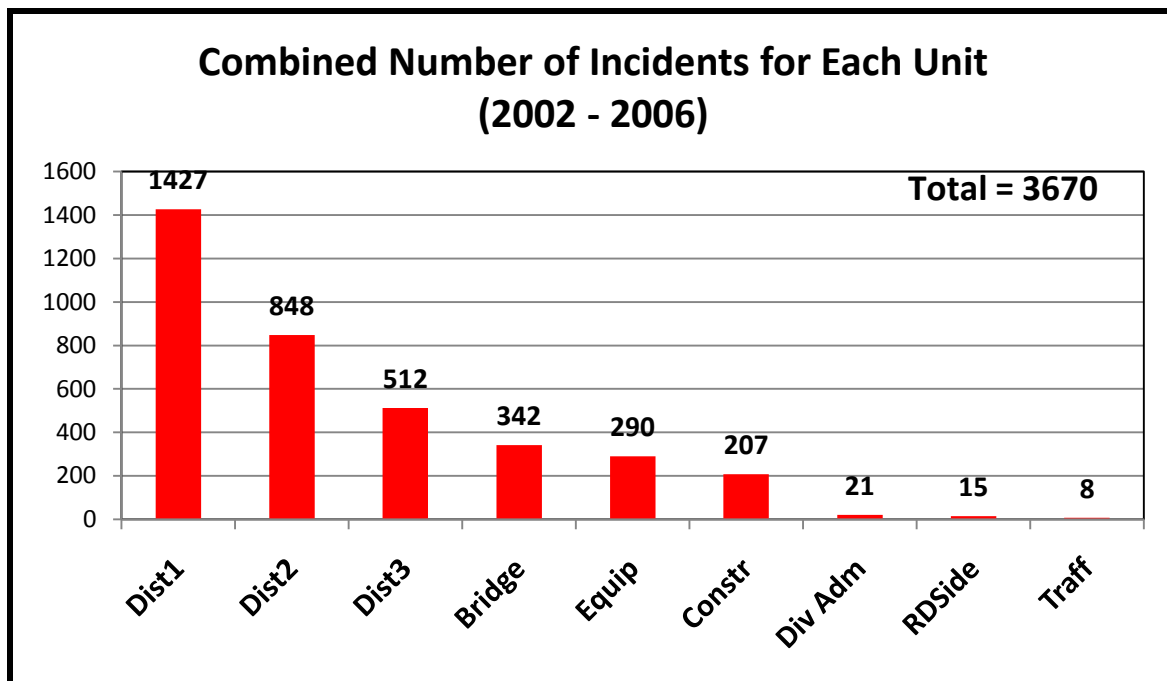
ACROSS ALL 14 DIVISIONS

This section presents the combined performance results of all operating units and offices of 14 Divisions of NCDOT.

1. Combined Number of Incidents for Each Unit

Incidents across 14 divisions are a representation of the performance of all the divisions and offices in the NCDOT. With reference to the analysis, the recorded number of incidents for all District 1 combined was 1427. Districts 2 and 3 were next in order in terms of combined number of incidents of 848 and 512, respectively. Table and Chart below reflect the trend of incidents across 14 divisions.

Combined Number of Incidents for Each Unit (2002 – 2006)															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Dist1	110	70	84	97	80	57	142	98	66	126	55	116	175	151	1427
Dist2	30	19	37	183	90	57	87	57	26	49	50	48	57	58	848
Dist3	32	23	60	81	50	34	37	71	0	50	15	0	0	59	512
Bridge	14	16	25	22	19	16	20	31	20	32	19	38	37	33	342
Equip	21	11	26	26	33	11	21	24	5	19	18	19	17	39	290
Constr	5	12	23	20	42	5	31	10	9	22	7	8	3	10	207
Admin	4	0	2	3	1	1	1	0	2	2	0	0	3	2	21
RDSide	15	0	0	0	0	0	0	0	0	0	0	0	0	0	15
Traff	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Total	239	151	257	432	315	181	339	291	128	300	164	229	292	352	3670

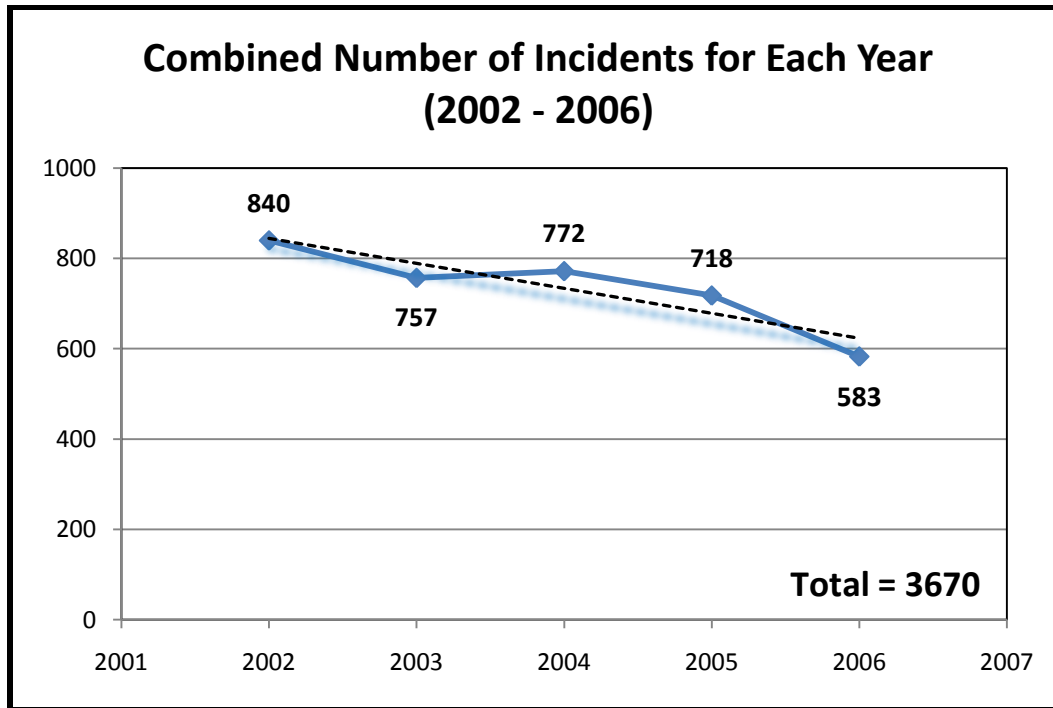


2. Combined Number of Incidents of all 14 Divisions per Year

The number of incidents over the study period in 14 divisions combined represents an annual performance of all the divisions, districts and offices in the NCDOT from 2002 to 2006. In 2002, a total of 840 incidents were recorded. Table and chart reflect the trend of incidents across 14 Divisions combined.

Combined Number of Incidents for Each Year (2002 - 2006)															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
2002	52	27	55	192	44	35	77	57	31	40	38	65	62	65	840
2003	40	35	53	47	96	37	70	57	19	74	36	31	62	100	757
2004	54	37	59	51	58	43	76	63	22	62	35	51	91	70	772
2005	41	30	49	103	61	36	53	60	27	86	27	46	45	54	718
2006	52	22	41	39	56	30	63	54	29	38	28	36	32	63	583
Total	239	151	257	432	315	181	339	291	128	300	164	229	292	352	3670

The graph below shows the trend line for the number of combined incidents during 2002-2006. It shows an overall decline of the number of incidents over the years (840 incidents in 2002 dropping to 583 incidents in 2006).

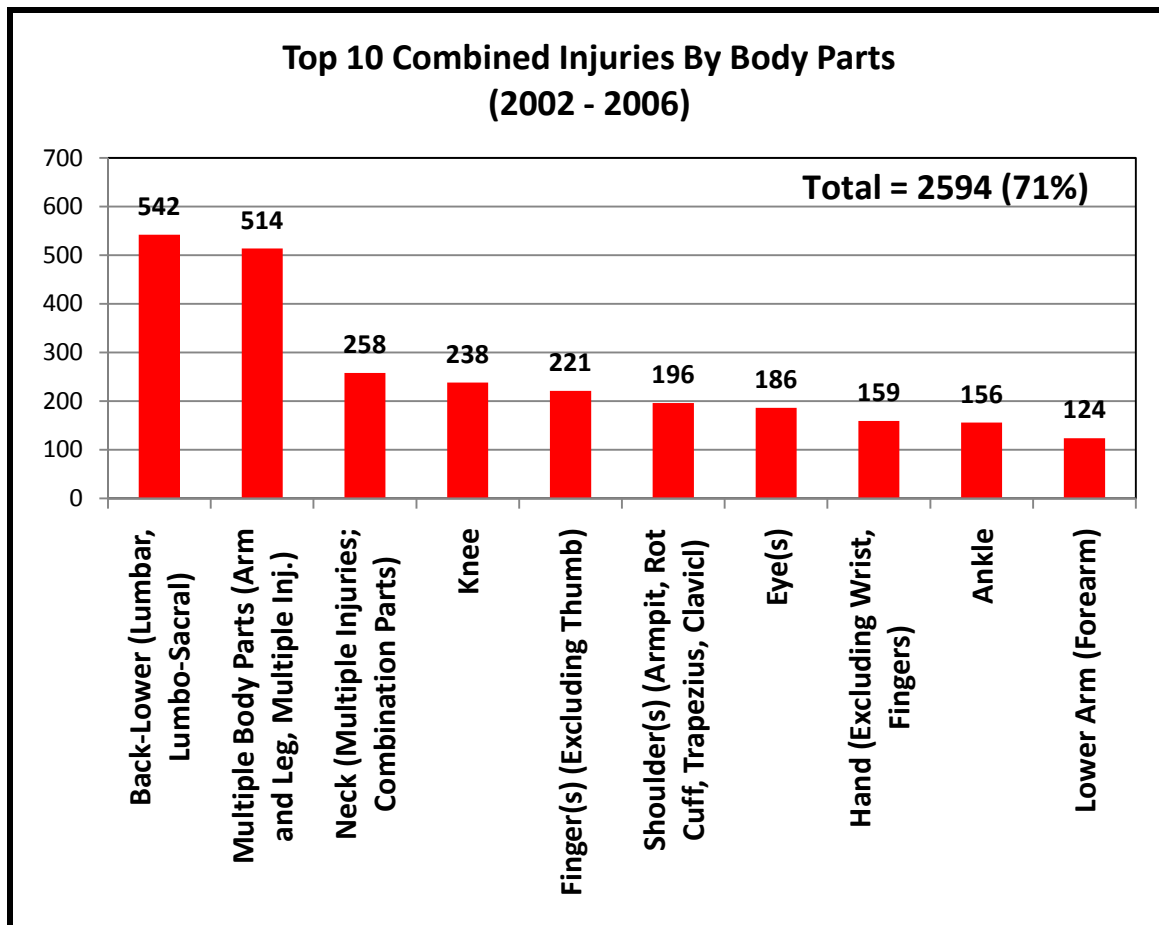


3. Combined Number of Injuries by Body Parts

The chart below shows the number of injuries divided up into the parts of the body that were injured. Out of the 3670 total injuries across the 14 divisions, 542 of them were lower back injuries.

Injuries By Body Parts Combined	Division														Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Back-Lower	28	20	37	72	58	34	46	36	20	40	21	36	39	55	542
Multiple Body Parts (Arm, Leg)	31	13	30	31	60	13	72	36	10	56	19	37	40	66	514
Neck (Multiple Injuries)	11	2	11	149	7	16	20	6	4	12	3	4	5	8	258
Knee	18	13	21	17	17	11	17	21	10	21	7	18	19	28	238
Finger(s) (Excluding Thumb)	6	10	15	13	19	16	16	22	5	14	15	16	30	24	221
Shoulder(s) (Armpit, Rot Cuff)	13	8	14	31	14	12	9	20	7	13	3	10	20	22	196
Eye(s)	13	12	16	9	8	10	18	15	3	16	18	11	12	25	186
Hand (Excluding Wrist, Fingers)	11	13	13	11	10	5	22	17	11	9	7	8	5	17	159
Ankle	12	6	8	8	14	12	15	15	12	8	7	11	15	13	156
Lower Arm (Forearm)	14	2	12	6	11	6	11	16	4	7	6	9	10	10	124
Head (Multiple Injuries)	8	2	6	12	17	7	8	11	2	14	4	4	7	9	111
Leg Lower	10	5	7	9	7	3	8	11	4	13	7	3	6	10	103
Abdomen (Excl. Int. Organs)	6	3	7	7	8	2	9	9	4	11	5	6	7	8	92
Foot	8	6	5	7	8	3	8	6	2	6	4	6	8	5	82
Chest (Ribs, Soft Tissue)	6	4	7	8	1	6	14	3	2	2	4	6	11	4	78
Wrist	6	3	6	5	3	3	5	4	3	5	3	5	13	5	69
Unknown		9	5	1	17		2	2	3	12	5	9	1	2	68
Thumb	4	2	5	4	4	2	9	5	3		5	5	6	10	64
Facial Soft Tissue	3		4	4	5	1	2	5	3	8	2	8	6	5	56
Elbow (Radial Head)	2	2	2	4	3	6	6	8	2	8	3		7	2	55
Wrist(s) & Hand(s)	3	1	3	1	3	2	4	3	1	5	1	7	4	2	40
Hip	2	5	3	7	4	2	2	2		4	1		1	2	35
Back-Upper (Cervical, Thoracic)	3		2		3	2	1	5	3	2	2	2	2	5	32
Thigh, Upper Leg	2	2	1	4	3	3	2		3	1	1	2	2	4	30
Ear(s) (Eardrum)	3	3	1	2	2	1		1	1	2	3		3	3	25
Upper Arm (Humerus)	4	2	3	2	3	2	2	1	2	1	1	1	1		25
Facial Bones	4		1	1	2		5			2	1		3		19
Teeth-Tooth	2		4	1				1	1	1	1	2	2	1	16
Mouth (Lips, Tongue, Throat)			3		2	1	2	1	1	1	2		1	1	15
Nose (Incl. Nasal Passage)		1	2	3	1			2			2		3		14
Lower Extremities (Mult. Parts)	1	1			1			1	1		1			3	9
Toe (Great)								1		5				1	7
Toe(s)	1		1	1				2				1		1	7
Buttocks	1		2					1				1	1		6
Lungs	2			1					1				1		5
Pelvis							2					1	1		4
No Physical Injury (Mental Dis.)	1									1				1	3
Upper Extremities (Multiple)				1			1	1							3
Internal Organs (Other Than Heart, Lungs)		1													1
Skull							1								1
Vertebrae								1							1
Total	239	151	257	432	315	181	339	291	128	300	164	229	292	352	3670

The following graph displays the combined number of body parts injured into the Top 10 parts injured. It provides a more descriptive analysis of each type of bodily injury. The graph shows the information in a descending order.

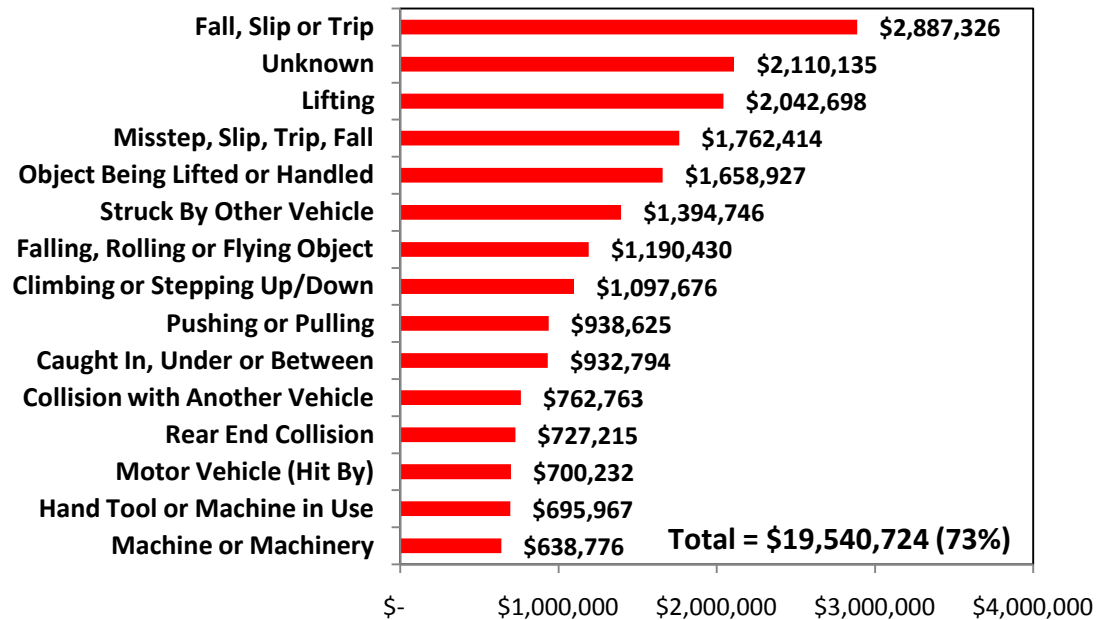


4. Combined Dollar Loss by Cause of Injuries

Top 15 Combined Dollar Loss by Cause

The graph below shows the Top 15 causes of injury across all 14 divisions throughout 2002-2006. The top cause of injury is fall, slip or trip with a total of \$2,887,327. The next two highest costs are caused by an unknown source and due to lifting with \$2,110,135 and \$2,042,698, respectively.

Top 15 Combined Dollar Loss By Cause (2002 - 2006)

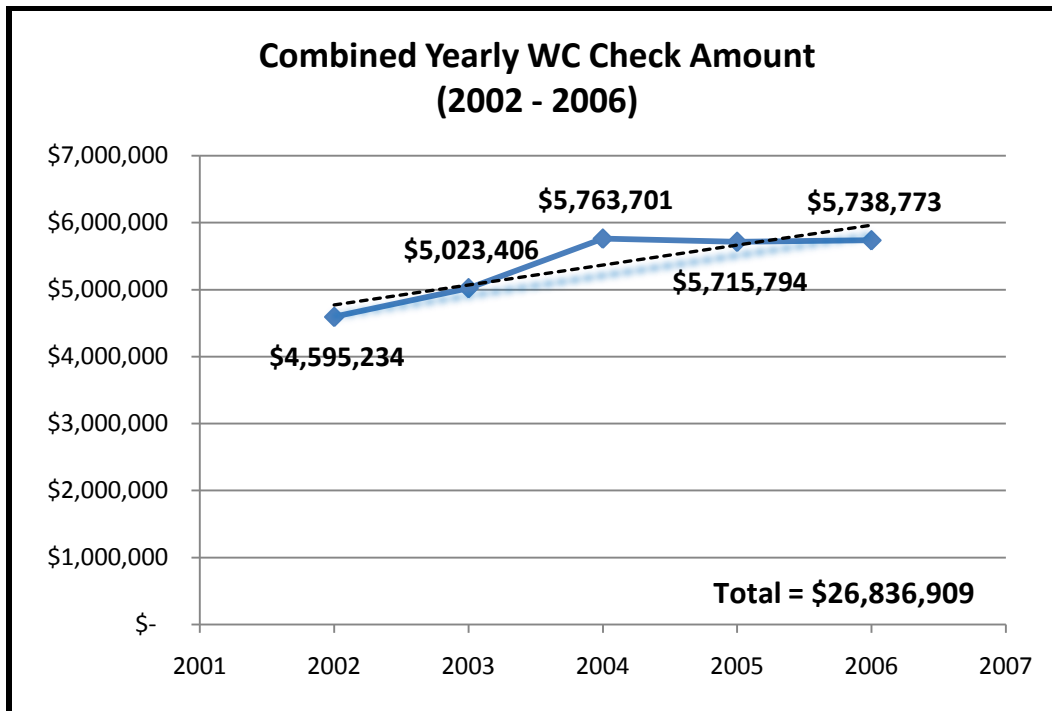


5. Combined Dollar Loss for All Claims

The following table displays the cost of all the claims during 2002-2006 split up into the 14 different divisions. The total cost of all 14 divisions is \$26,836,909. The leading division of cost due to incident claims is Division 3 with \$2,717,670 followed by Division 13 with \$2,599,655. Division 9 had the lowest cost with \$715,948.

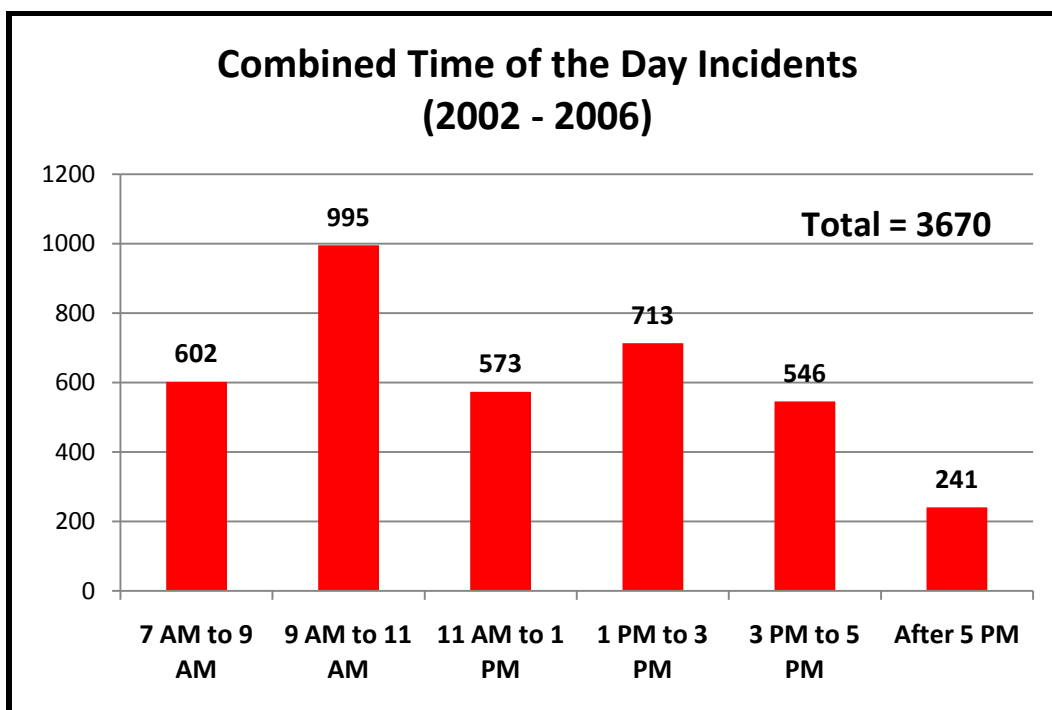
Combined Yearly WC Check Amount								
	Div 1	Div 2	Div 3	Div 4	Div 5	Div 6	Div 7	Total
2002	\$ 292,161	\$ 198,128	\$ 521,540	\$ 328,050	\$ 379,084	\$ 225,687	\$ 446,708	
2003	\$ 234,416	\$ 179,077	\$ 615,919	\$ 453,128	\$ 503,851	\$ 295,446	\$ 321,472	
2004	\$ 314,302	\$ 272,327	\$ 642,054	\$ 296,914	\$ 324,141	\$ 554,597	\$ 330,047	
2005	\$ 385,354	\$ 258,073	\$ 483,783	\$ 269,300	\$ 556,243	\$ 430,311	\$ 257,406	
2006	\$ 207,366	\$ 295,397	\$ 454,373	\$ 509,745	\$ 559,311	\$ 485,232	\$ 304,684	
Total	\$ 1,433,599	\$ 1,203,001	\$ 2,717,670	\$ 1,857,137	\$ 2,322,629	\$1,991,274	\$ 1,660,316	
	Div 8	Div 9	Div 10	Div 11	Div 12	Div 13	Div 14	Total
2002	\$ 164,738	\$ 129,204	\$ 521,116	\$ 243,274	\$ 480,392	\$ 284,716	\$ 380,437	\$ 4,595,234
2003	\$ 191,562	\$ 145,496	\$ 505,102	\$ 236,518	\$ 678,432	\$ 354,872	\$ 308,116	\$ 5,023,406
2004	\$ 465,231	\$ 191,437	\$ 315,017	\$ 371,532	\$ 627,277	\$ 584,309	\$ 474,516	\$ 5,763,701
2005	\$ 374,409	\$ 118,925	\$ 512,518	\$ 353,588	\$ 504,958	\$ 604,804	\$ 606,121	\$ 5,715,794
2006	\$ 524,089	\$ 130,886	\$ 466,294	\$ 511,222	\$ 308,596	\$ 376,203	\$ 605,375	\$ 5,738,773
Total	\$ 1,720,028	\$ 715,948	\$ 2,320,047	\$ 1,716,134	\$ 2,599,655	\$2,204,903	\$ 2,374,565	\$26,836,909

The graph below shows the trend in the workers compensation check over 2002-2006 for all 14 divisions. It shows a fairly steady increase in cost. In 2002, the cost was \$4,595,234 it increased to \$5,738,773 in 2006.



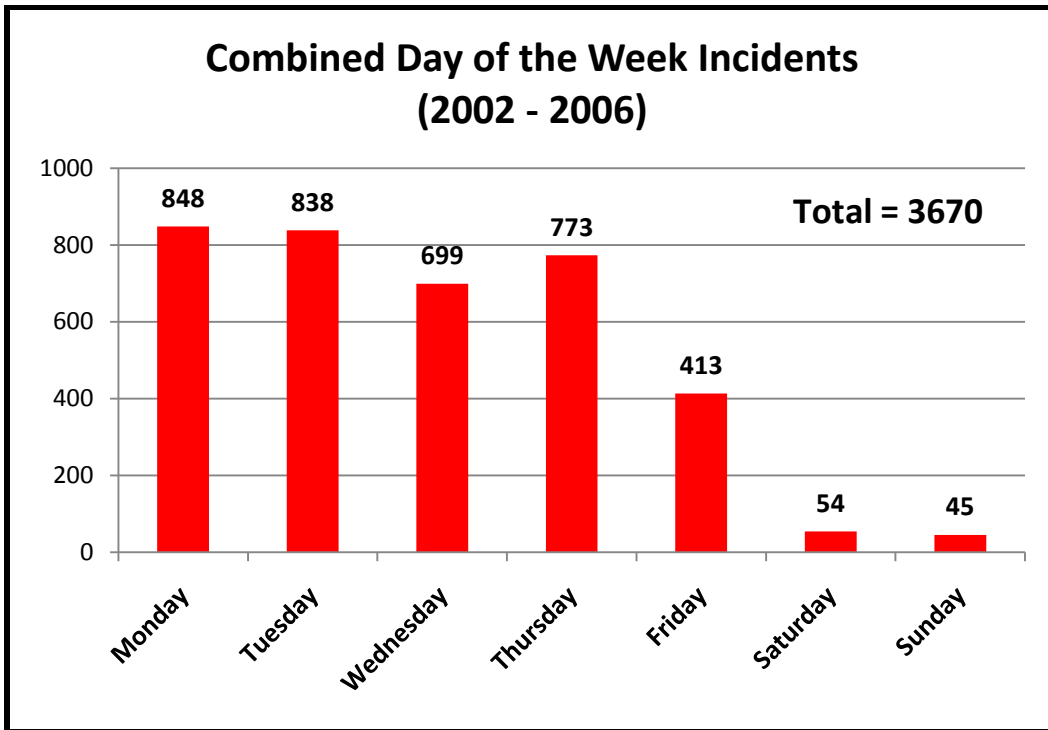
6. Combined Time of the Day

The next graph shows the 14 divisions during 2002-2006 and the relation between the time of day and the incident. The majority of the accidents occurred between 9am-11am with a total of 995 incidents. The second and third greatest number of incidents occurred between 1pm-3pm and 7am-9am with 713 and 602 incidents, respectively.



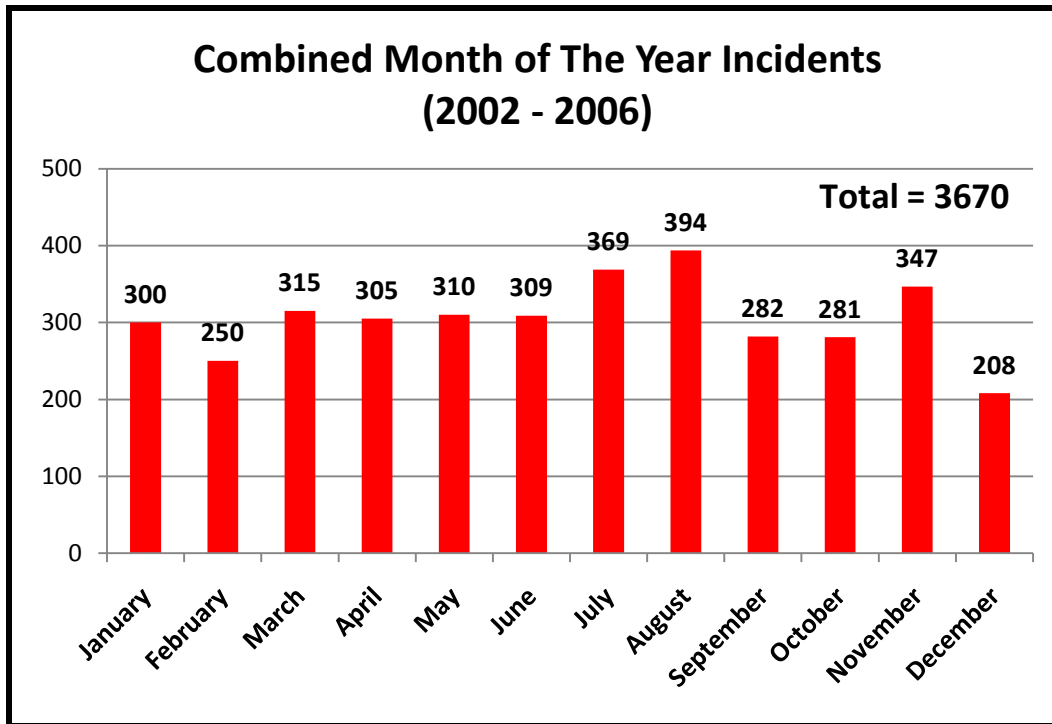
7. Combined Day of the Week

The graph below displays the combined number of incidents divided into the seven days of the week during the years 2002-2006 for the 14 divisions of the NCDOT. Mondays had the greatest number of incidents with 848, followed closely by Tuesday with 838 accidents. It follows the general principle that the number of incidents drastically drops during the weekend. The graph shows the data in a declining fashion.



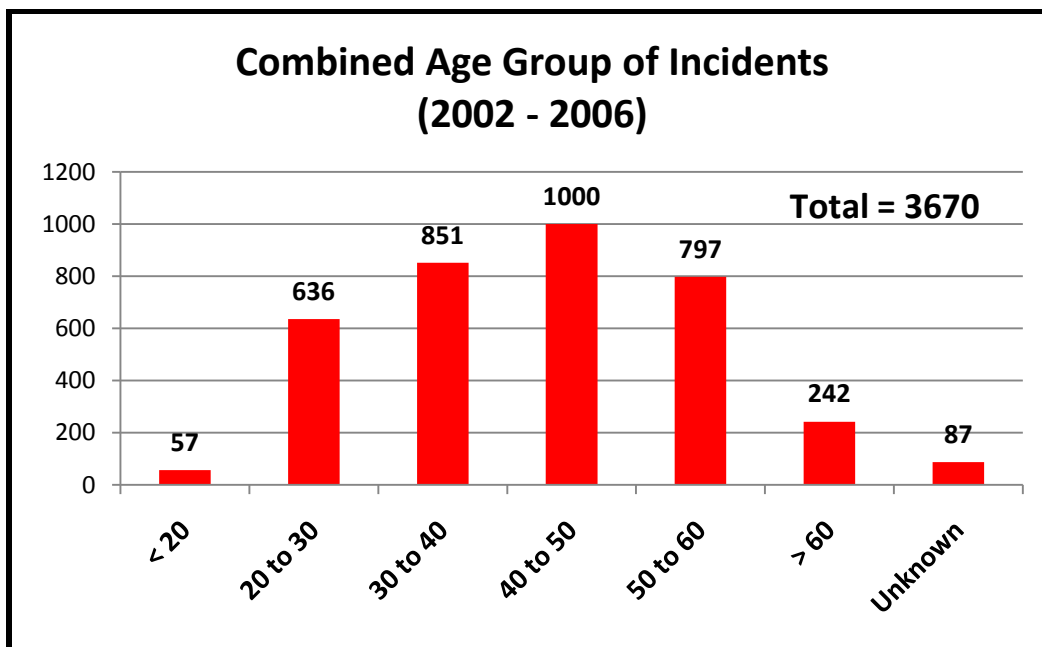
8. Combined Month of the Year

The following graph shows the data of the 14 divisions represented as the twelve months of the year. The month with the greatest amount of incidents was August with a total of 394. The next largest was July with 369 incidents. The month with the least amount of incidents was December with a total of 208.



9. Combined Age Group of Incidents

The following graph displays the total number of incidents in the 14 divisions split up into various age groups. The age group with the largest number of incidents was 40-50 years old with a total of 1000. The next largest was in the 30-40 year old age group with 851 incidents. The less than 20 years of age group had the least with only 57 incidents which could be directly related to the average age of people working in the NC DOT.

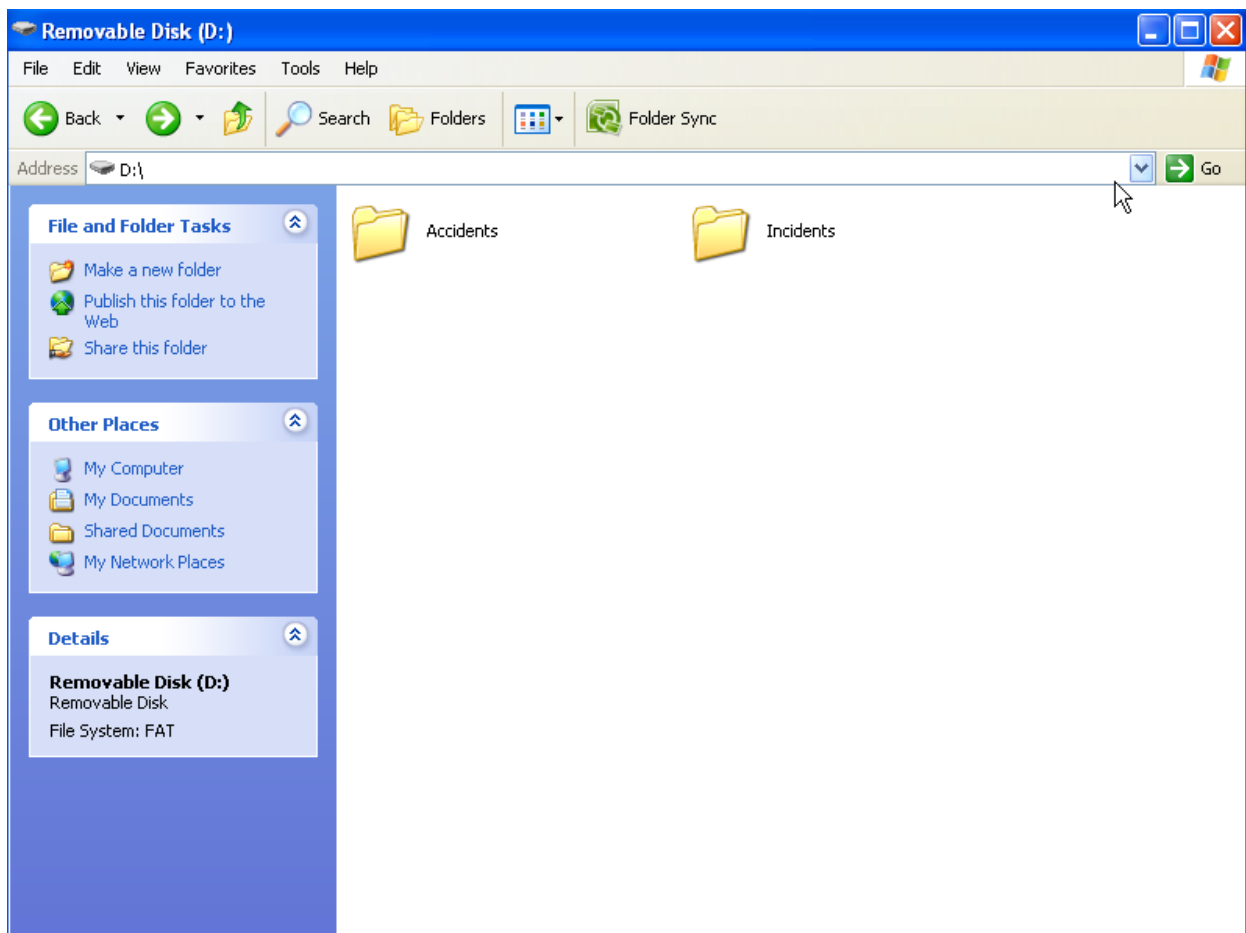


SORTMASTER STANDARD REPORT FORMATS

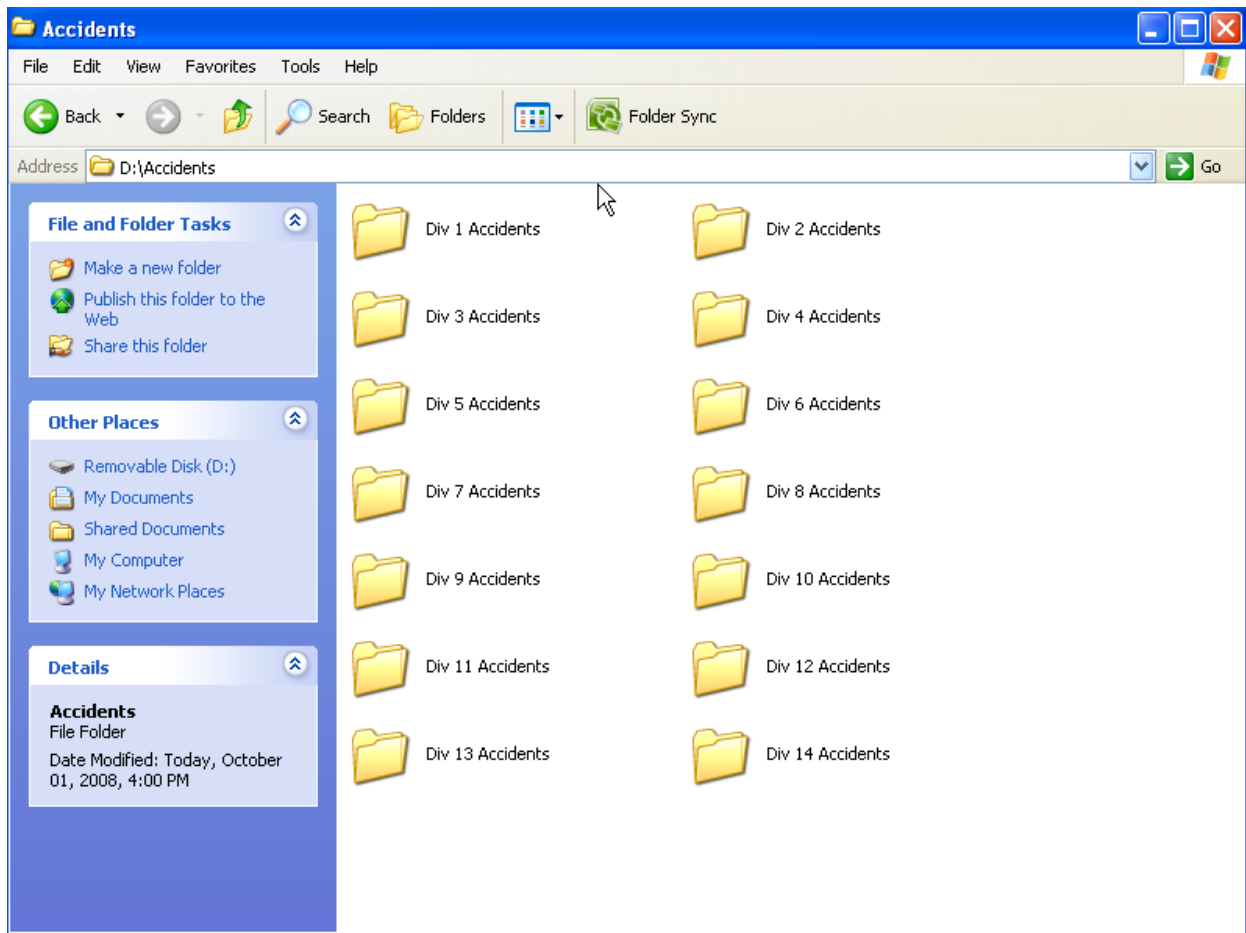
All the performance characteristics used in this study for both accidents and incidents are exported from “SORTMASTER.” Using these performance variables, several report definitions are created by completing a series of configuration tabs for the selected report type. These configuration tabs are grouped together in the “RISKMASTER” reports window for each report type. These reports are saved as standard report templates to track future trend.

Standard report templates are saved on a flash drive for the NCDOT personnel to use. This section describes what is included in the flesh drive.

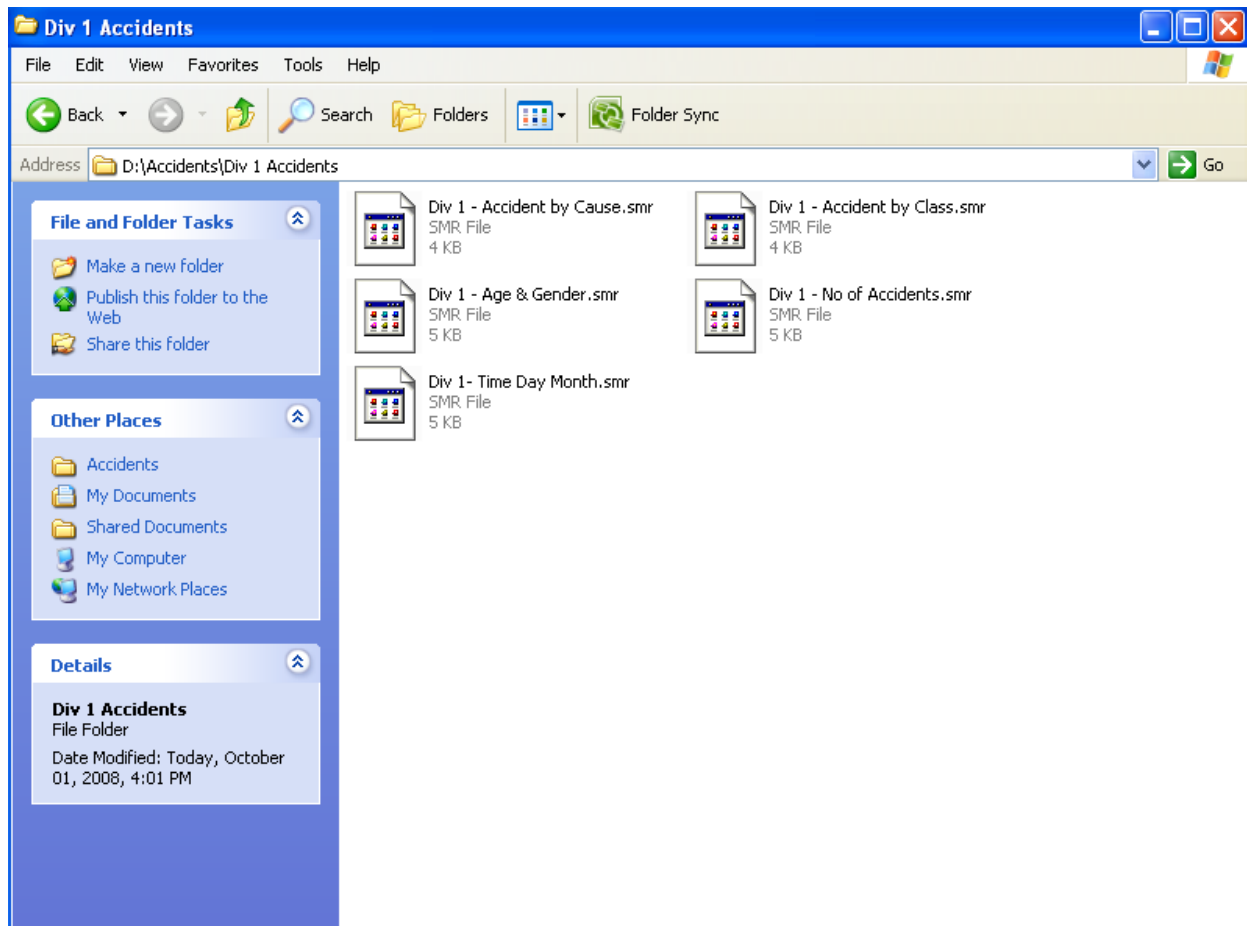
1. Provided thumb drive contains two file folders, one labeled as **Accidents** and the other as **Incidents**.



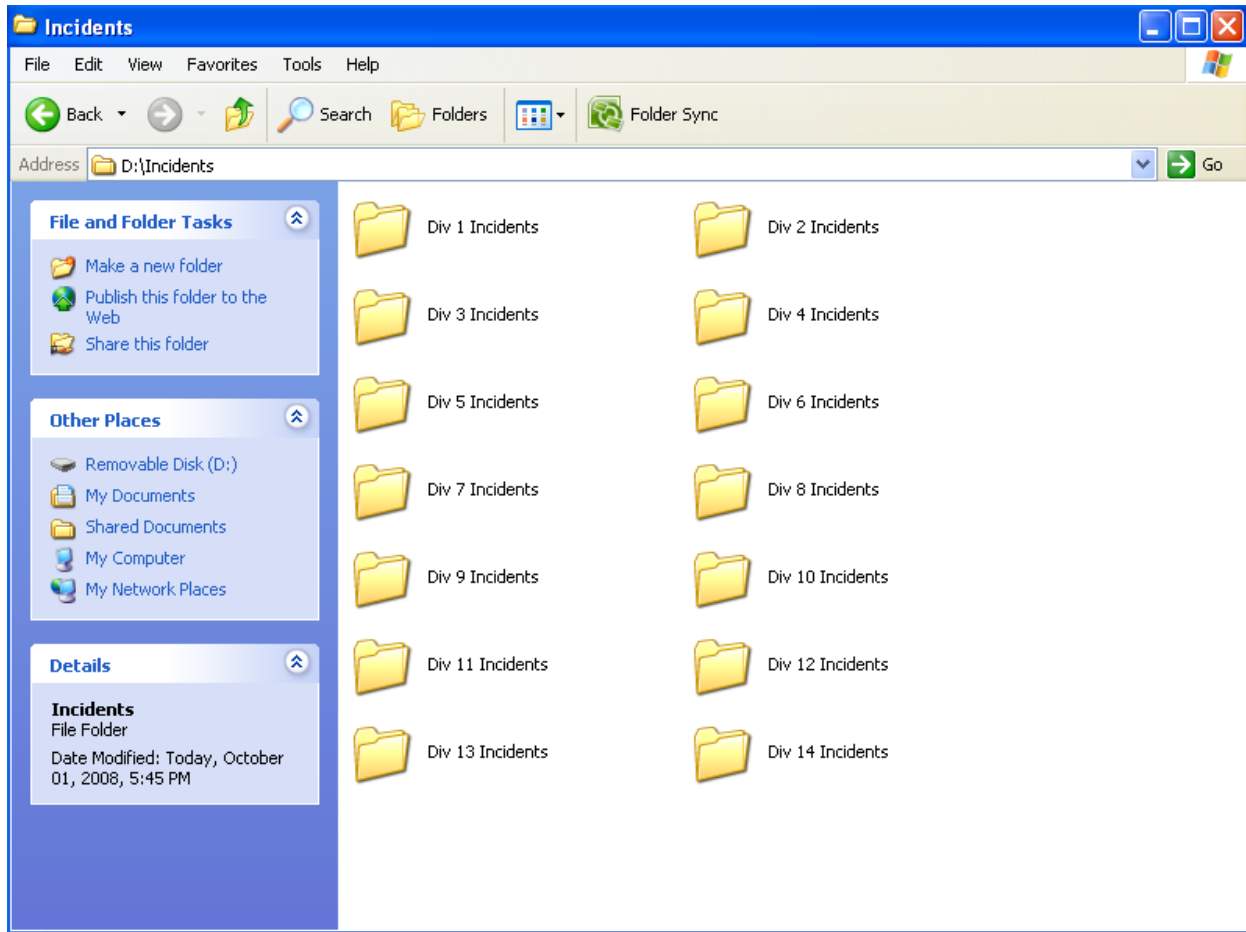
2. There are fourteen (14) sub folders within Accidents file folder, each contains SORTMASTER files pertaining to particular NCDOT Division.



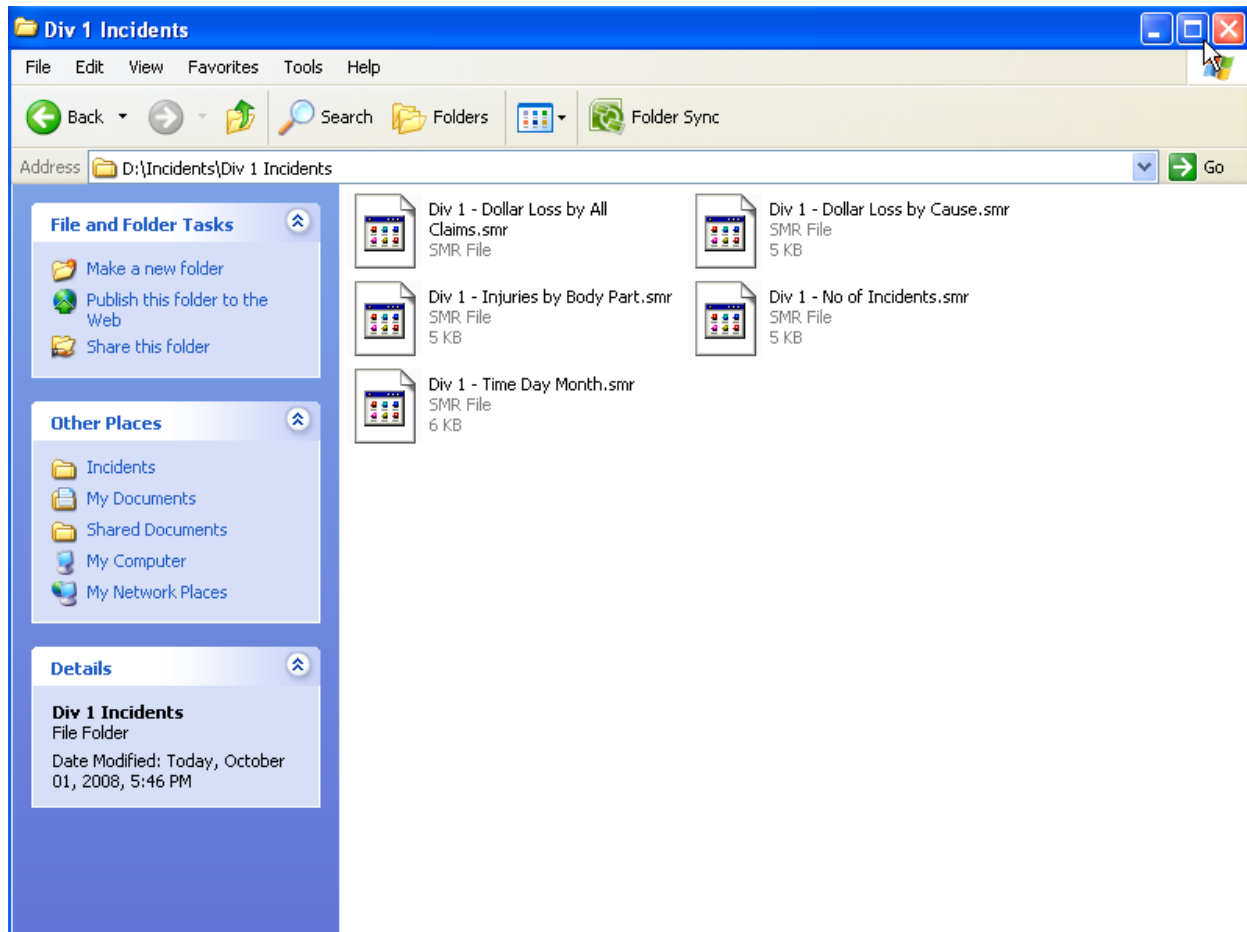
3. Each Divisional Accident folder contains five SORTMASTER files: Accident by Cause, Accident by Class, Age & Gender, Accidents in general, and time, day, and month of accidents. Date of analysis for each SORTMASTER file is set from **January 1, 2007 to December 31, 2007 (Report dates should be changed as needed)**. Copies of report for each file are provided as a reference.



4. There are fourteen (14) sub folders within Incidents file folder, each contains SORTMASTER files pertaining to particular NCDOT Division.



5. Each Divisional Incident folder contains five SORTMASTER files: Dollar Loss by All Claims, Dollar Loss by Cause, Injuries by Body Part, Incidents in general, and time, day, and month of incidents. Date of analysis for each SORTMASTER file is set from **January 1, 2007 to December 31, 2007 (Report dates should be changed as needed)**. Copies of report for each file are provided as a reference.



CONCLUSION

The first research objective is to find any trends in the occurrence of injuries and accidents that provide valuable insight to achieve ongoing improvement in overall OSH performance by closely looking into various aspects of all recorded incidents and accidents during the period of analysis. By performing descriptive analysis on key performance characteristics, circumstances related to greater accidents and incidents are identified. Some of the significant findings are listed below.

Incidents related:

- Over the study period, the number of incidents occurrence has steadily decreased from 840 in 2002 to 583 in 2006.
- Lower back is the most injured body part revealed (15%), followed by multiple body parts such as arm and leg.
- The top cause of injury is fall, slip, or trip with a total dollar loss of \$2,887,327. Lifting is the next highest cost-spending injury.
- The leading division of cost due to incident claims is Division 3 (\$2.72 MM). Division 9 had the lowest cost with \$716K.
- Workers Comp payment has steadily increased over the study period from \$4.6 MM in 2002 to \$5.7MM in 2006.
- The majority of the accidents occurred between 9 AM to 11 AM, with a total of 995 incidents (27%).
- Not much variation was observed among different days of the week or months of the year.
- Most incidents (27%) occurred to age group 40 to 50 year old male employees.

Accidents related:

- Over the study period, the number of accidents has slightly increased from 969 in 2002 to 997 in 2006.
- Pickup, dump truck, trucks combined together accounted for 61% of the total accidents.
- Auto-PV Hit SV, Backing, and Auto-SV Hit PV together had the highest number of accidents (39%).
- Backing was the number one cause of accidents.

- Most accidents occurred during the time period of 9 AM to 11 AM and 1 PM to 3 PM.
- Not much variation was observed among different days of the week or months of the year.

Resources should be placed and focused to be more effective in reducing incidents and accidents per the research findings.

RECOMMENDATIONS

Findings from this study should provide information to NCDOT on how to improve overall OSH performance. As suggested in the NCDOT Safety Policy & Procedure, changes in the occurrence rates of accidents and injuries are useful in determining areas in which more work in reducing and preventing injury to the workforce is needed.

In order to benefit from this effort and from future trend analysis, several improvements should be made. The most significant improvement should be made on accuracy of data being entered to RISKMASTER. Specifically, information on age and gender are often times very inaccurate. Accuracy in data entry needs to be improved by all parties involved.

Another data entry related improvement that can be made is the type of equipment being entered into the database. Equipment or vehicles falling under same category can be entered using the categorical name instead of the original (brand) name of the equipment or vehicle (e.g., pickup instead of F150). This will enhance data analysis related to various equipment types currently available.

Causes of bodily injuries entered in the database are too broad to draw any meaningful conclusions. It might be better to categorize certain tasks, activities, etc., and when the data is being entered, the person can select the cause of the incident from the category. This practice will somewhat control the database from becoming too broad and make it difficult to conduct meaningful analysis.

IMPLEMENTATION AND TECHNOLOGY TRANSFER PLAN

Primary research products are:

Research Report – background for the research, accidents/incidents performance characteristic variables, trend analyses on performance variables over the past five year span (2002 – 2006),

“SORTMASTER” standard report format - RISKMASTER users to generate ongoing trend reports in the future.

Training Session – How to use the standard report format

The implementation and technology transfer of the products of this research will be in the form of on-site training session given to NCDOT personnel who are currently using or will be using it in the near future.

The *Workplace Safety Manual* aids the NCDOT in creating a climate that encourages safety throughout the different Divisions by emphasizing the active involvement of all line managers and supervisors. In order to sustain this management involvement, a structured program consisting of safety committees (made up of top management), safety meetings, audits and incident investigations was established throughout all levels of the organization. The results of this research study can be readily incorporated into this safety program as a standard tool.

REFERENCES

- Abudayyeh, O., Federicks, T., Palmquist, M., and Torres, H. N. 2003. Analysis of Occupational Injuries and Fatalities in Electrical Contracting Industry. *J. of Construction Engineering and Management* 129 (2):152-158.
- Ahmed, S. M., Kwan, J. C., Ming, F. Y. W., and Chong Pui Ho, D. 2000. Site Safety Management in Hong Kong. *J. of Management in Engineering* 16 (10):34-42.
- Bureau of Labor Statistics [BLS] (2002). Fatal Workplace Injuries in 2000: A Collection of Data and Analysis. Washington, DC: U.S. Government Printing Office
- Centers for Disears Countrol and Prevention (CDC) (1993). Fatal Injuries to Workers in the United States, 1980 – 1989: A Decade of Surveillance. Washington DC: U.S. Government printing office.
- Fredericks, T. K., Abudayyeh, O., Choi, S. D., Wiersma, M., and Charles, M. 2005. Occupational Injuries and Fatalities in the Roofing Contracting Industry. *J. of Construction Engineering and Management* 131(11):1233-1240.
- Hinze, J., Pedersen, C., and Fredley, J. 1998. Identifying Root Causes of Construction Injuries. *J. of Construction Engineering and Management* 124(1):67-71.
- Jannadi, O. A. and Almishari, S. 2003. Risk Assessment in Construction. *J. of Construction Engineering and Management* 129(5):492-500.
- Mitropoulos, P., Abdelhamid, T. S., and Howell, G. A. 2005. Systems Model of Construction Accident Causation. *J. of Construction Engineering and Management* 131(7):816-825.
- Mohamed, S. 2002. Safety Climate in Construction Site Environments. *J. of Construction Engineering and Management*, 128(5):375-384.
- National Safety Council (2002). Injury, Facts, Itasca, IL: Author
- North Carolina Department of Transportation. 2005. *Occupational Safety and Health, System Management*. SPP# A-2.
- U.S. Department of Labor. 2006. *Health and Safety Statistics*. (<http://www.bls.gov>), Bureau of Labor Statistics, Washington, D.C